

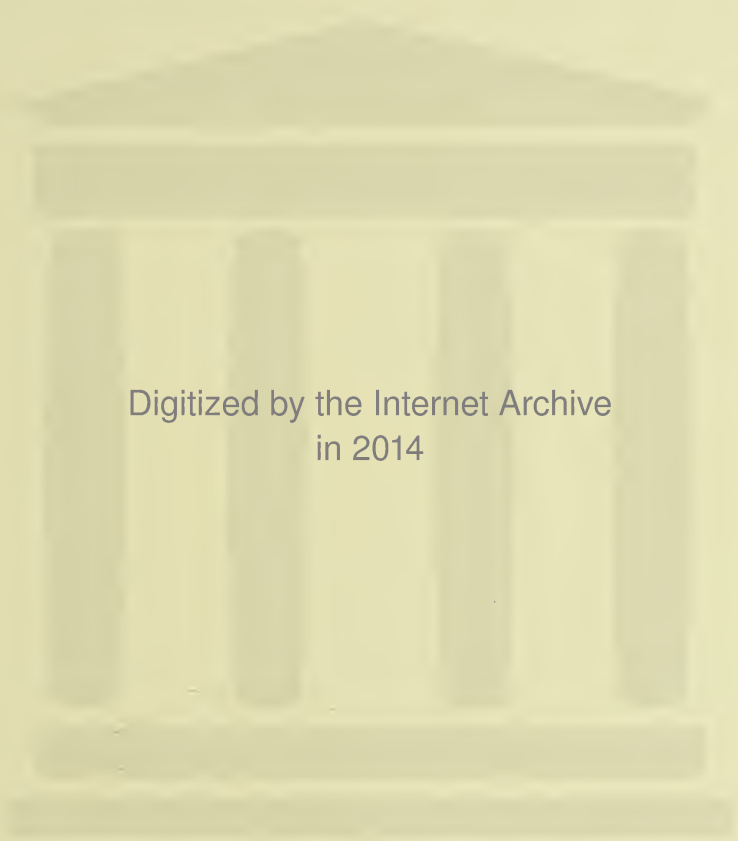
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REPORTS

UNIVERSITY OF PENNSYLVANIA
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OF THE

INSPECTORS OF COAL MINES OF PENNSYLVANIA.

1893.

With a summary of coal production, etc., prepared by the
Bureau of Industrial Statistics, Department of
Internal Affairs.

CLARENCE M. BUSCH,
STATE PRINTER OF PENNSYLVANIA.

1894.



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CONTENTS.

	<i>Page.</i>
Report of the Inspector of the First Anthracite District, ...	5
Report of the Inspector of the Second Anthracite District, ...	51
Report of the Inspector of the Third Anthracite District, ...	77
Report of the Inspector of the Fourth Anthracite District, ...	105
Report of the Inspector of the Fifth Anthracite District, ...	145
Report of the Inspector of the Sixth Anthracite District, ...	197
Report of the Inspector of the Seventh Anthracite District, ...	221
Report of the Inspector of the Eighth Anthracite District, ...	243
Report of the Inspector of the First Bituminous District, ...	257
Report of the Inspector of the Second Bituminous District, ...	287
Report of the Inspector of the Third Bituminous District, ...	315
Report of the Inspector of the Fourth Bituminous District, ...	337
Report of the Inspector of the Fifth Bituminous District, ...	353
Report of the Inspector of the Sixth Bituminous District, ...	585
Report of the Inspector of the Seventh Bituminous District, ...	407
Report of the Inspector of the Eighth Bituminous District, ...	439
Report of the Inspector of the Ninth Bituminous District, ...	477
Report of the Inspector of the Tenth Bituminous District, ...	509

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THE
UNIVERSITY OF CHICAGO
PRESS



REPORTS
OF THE
INSPECTORS OF MINES.

COMMUNICATION.

Department of Internal Affairs,
Harrisburg, June 19, 1894.

To His Excellency, Robert E. Pattison, Governor of Pennsylvania:

Sir: In compliance with the requirements of the Act of June 30, 1885, relative to the Mine Inspectors' Reports of the Anthracite and Bituminous Coal Regions, and of the Act of April 23, 1889, I have the honor to present to you for transmission to the General Assembly the reports of the Inspectors of this Commonwealth for the year 1893.

Very respectfully yours,

THOS. J. STEWART,
, Secretary of Internal Affairs,

MINING STATISTICS.

The following tables, prepared by the Bureau of Industrial Statistics, contain a summary of the production of coal, number of persons employed and accidents resulting from their employment for 1893, and also a comparison of the statistics with similar ones for previous years.

The aggregate production of anthracite coal for 1893 was 47,179,563 tons, an increase of 1,444,189 tons over the production for 1892. Luzerne is the leading county and produced 18,253,144 tons. Lackawanna comes next, producing 11,667,550 tons. The third producing county is Schuylkill, which produced 9,992,085 tons, and the fourth in rank is Northumberland, producing 3,731,404 tons. One other county may be mentioned, Carbon, which produced 1,510,289 tons. The production of Cambria, Dauphin, Sullivan and Susquehanna counties was very much smaller and aggregated only 2,025,088 tons.

The increased production for 1893 required the employment of 8,224 more men, or an increase from 129,797 to 138,021. The average annual production of coal per man was the following:

1893, ...	342 tons.
1892	352 tons.
1891	360 tons.
1890, ...	281 tons.
1889, ...	242 tons.

The bituminous coal field is much larger, but the figures show no such increase in production for 1893. On the other hand, there was a considerable decline in production from that of the previous year, as 43,421,898 tons were produced, while in 1892 the production was 46,576,576 tons. The decrease, also, in the production of coke was very large. In 1892, 7,891,630 tons were produced, while in 1893 but 5,549,296 tons were produced, or a decrease of 2,342,334 tons. As usual, Westmoreland leads in production, 7,583,346 tons having been produced in that county during 1893. Allegheny county comes next with a production of 6,894,510 tons. The production of two other counties, Clearfield and Fayette, are nearly the same, the former producing 6,081,324 tons, while Fayette produced 6,105,845 tons. The production of four other counties may be mentioned: Washington,

producing 3,414,444 tons; Cambria producing 3,377,459 tons; Jefferson, producing 3,072,297 tons, and Centre county, producing 1,259,351 tons. The production of the other counties falls considerably below these figures. The leading coke-producing counties are Fayette and Westmoreland, the production of the former being 3,011,054 tons or a decrease of 1,257,771 tons from the production of 1892. The production of Westmoreland county was 1,700,889 tons, a decrease of 925,565 tons from the production of 1892. The number of men employed in the bituminous coal field for 1893 was 81,800, and for the previous year 78,789. Notwithstanding a decrease in production of both coal and coke, there was an increase of 3,011 in the number of men employed. Of course, it follows that they could not have been employed as regularly during 1893 as they were during 1892. At all times employment is less regular in the bituminous coal field than in the anthracite, but during the year under review the bituminous coal miners were employed for shorter aggregate periods than those engaged in mining anthracite. The average annual production of bituminous coal per man for the last five years is shown in the following table:

1893, ...	531 tons.
1892, ...	590 tons.
1891, ...	564 tons.
1890, ...	609 tons.
1889, ...	565 tons.

Next may be given a summary of the accidents, fatal and non-fatal, in mining coal. First of all, a comparison may be made between the fatal accidents attending the mining of coal in the two regions:

	1893.	1892.	1891.	1890.	1889.
Anthracite, ...	455	396	427	378	384
Bituminous, ...	131	133	237	146	105

The percentage of fatal and non-fatal accidents for the number employed during the last five years in the anthracite and bituminous regions is the following:

Anthracite Region.

<i>Fatal Accidents.</i>	<i>Non-fatal Accidents.</i>
1893, 1 to 303 employes.	1893, 1 to 129 employes.
1892, 1 to 327 employes.	1892, 1 to 127 employes.
1891, 1 to 288 employes.	1891, 1 to 122 employes.
1890, 1 to 311 employes.	1890, 1 to 116 employes.
1889, 1 to 312 employes.	1889, 1 to 120 employes.

Bituminous Region.

Fatal Accidents.

1893, 1 to 1624 employees.
1892, 1 to 592 employees.
1891, 1 to 312 employees.
1890, 1 to 458 employees.
1889, 1 to 581 employees.

Non-fatal Accidents.

1893, 1 to 236 employees.
1892, 1 to 200 employees.
1891, 1 to 235 employees.
1890, 1 to 177 employees.
1889, 1 to 203 employees.

The percentage of fatal and non-fatal accidents in the two regions for the period of five years, for the number of tons mined, is the following:

Anthracite Region.

Fatal Accidents.

1893, 1 for 103,691 tons.
1892, 1 for 115,501 tons.
1891, 1 for 103,923 tons.
1890, 1 for 106,260 tons.
1889, 1 for 101,490 tons.

Non-fatal Accidents.

1893, 1 for 44,134 tons.
1892, 1 for 44,817½ tons.
1891, 1 for 44,253½ tons.
1890, 1 for 39,729 tons.
1889, 1 for 39,051½ tons.

Bituminous Region.

Fatal Accidents.

1893, 1 for 331,465 tons.
1892, 1 for 350,199 tons.
1891, 1 for 176,319 tons.
1890, 1 for 273,420 tons.
1889, 1 for 329,101 tons.

Non-fatal Accidents.

1893, 1 for 125,497 tons.
1892, 1 for 118,515½ tons.
1891, 1 for 133,081½ tons.
1890, 1 for 107,609½ tons.
1889, 1 for 114,803 tons.

With respect to the greater fatality attending the mining of anthracite coal, we would refer our readers to the explanation contained in the previous report on this subject. (See page VIII.)

Another table is given, showing the activity of all the collieries in the State for the last five years. For any explanation that may be desired concerning this table, the reader is referred to the remarks contained in the previous report.

Production of coal and coke in tons. Number of employees in and about the mines. Number of fatal and non-fatal accidents.

Districts.	Coal.				Coke.					
	1893.	1892.	1891.	1890.	1889.	1893.	1892.	1891.	1890.	1889.
<i>Anthracite.</i>										
First.	6,202,131.34	5,854,638.30	49,981,356	*8,932,235.07	*8,622,177.16	.	.	.	.	.
Second.	5,936,475.10	*6,013,537.19	.	*5,229,627.03	*4,636,891.09	.	.	.	.	.
Third.	5,629,914.85	*5,639,730.09	*6,125,094.15	6,907,708.75	7,923,123.55	.	.	.	.	.
Fourth.	8,065,768.95	*7,549,605.02	7,639,697.65	*5,776,699.08	5,655,338.83	.	.	.	.	.
Fifth.	6,239,068.10	*5,844,724.19	*5,803,964.07	*6,311,864.17	5,229,458.98	.	.	.	.	.
Sixth.	6,674,807	*6,287,366.06	*6,492,949.16	4,429,632	4,353,877.22	.	.	.	.	.
Seventh.	5,288,892.88	*5,944,678.17	*5,302,050.08	42,579,160	43,123,435	.	.	.	.	.
Eighth.	3,142,504.63	+3,065,692	+3,031,067	.	.	.	.	.	.	.
Total.	47,179,563.25	45,738,373.90	44,376,179.95	40,166,327.50	38,973,302.83	.	.	.	.	.
<i>Bituminous.</i>										
First.	4,876,307	4,299,437	3,948,665	3,818,802.61	2,588,531	.	.	1,000	1,700	2,143,561.90
Second.	6,635,308.25	8,003,246.50	6,753,614	6,976,785.35	6,925,171.85	.	2,306,788.87	1,750,264	2,875,390.75	31,056
Third.	3,224,130	3,207,814.25	3,422,550.50	2,985,743	2,665,017	.	66,458	147,897.50	72,886	91,508
Fourth.	3,890,132	3,606,142.36	3,834,245.25	3,773,642.94	3,143,322	.	70,473	108,028.06	91,955.10	8,674,657
Fifth.	3,629,559	7,360,101	5,423,801	6,453,183	6,023,681	.	4,280,570	1,192,300	3,958,893	932,851
Sixth.	3,140,284	7,360,158	6,950,036	5,866,184	4,205,019	.	1,033,866	1,330,374	1,192,300	93,341
Seventh.	4,435,416	5,897,942	4,843,174	4,572,325	3,738,227	.	12,000	10,392	14,216	114,078
Eighth.	5,043,478	6,811,735	6,611,559	6,337,338	5,263,676	.	123,475	113,629	223,796	.
Ninth.	4,814,178	.	.	.	.	.	.	.	.	.
Tenth.	2,773,116	.	.	.	.	.	.	.	.	.
Total.	43,421,898.25	46,576,576.11	41,787,644.75	40,784,063.90	34,555,644.85	.	7,891,630.87	6,591,542.56	8,431,140.85	6,373,052.90
Grand total.	90,601,461.50	92,314,950.01	86,163,824.70	80,950,331.40	73,528,947.68	5,549,296.90	7,891,630.87	6,591,542.56	8,431,140.85	6,373,052.90

* Decimal indicates twentieths of a ton.

+ First and Second Anthracite Districts reported together for the year 1891.

‡ Production of this district was obtained by adding 6 per cent. to the total shipments

Table showing production of anthracite coal and number of employes in and about the mines by counties.

Counties.	Tons of Coal.				Number of Employes.				
	1893.	1892.	1891.	1890.	1893.	1892.	1891.	1890.	1889.
Carbon, ...	1,510,289.50	1,427,542.85	1,191,158.50	1,266,541.45	4,410	3,848	3,312	3,232	2,104
Columbia, ...	741,990.74	889,489.85	761,559.15	599,404	2,654	2,424	2,787	2,219	1,886
Dauphin, ...	640,723.17	639,379	633,568.70	577,490	2,094	2,103	2,125	2,703	2,276
Lackawanna, ...	11,667,550.25	11,410,553.95	10,184,347.70	9,374,359.25	29,021	27,233	24,490	25,116	25,727
Luzerne, ...	18,253,144.75	17,548,508	17,726,559.65	15,825,673.75	51,392	47,344	46,825	43,376	44,393
Northumberland, ...	3,731,404.63	3,724,233.70	3,672,828.25	3,098,547	13,487	12,855	12,437	12,586	12,488
Schuylkill, ...	9,992,085.97	9,564,334.60	9,588,111.10	9,045,215.85	35,011	35,061	29,393	28,727	29,689
Sullivan, ...	70,418.05	76,063.65	74,884.35	68,549.75	675	661	590	556	556
Susquehanna, ...	571,566.19	457,622.50	384,444.45	315,350.45	1,095	999	823	639	478
Wayne, . . . . .	.....	.....	3,450.10	.....	.....	.....	18	.....	.....
Total, ...	47,179,563.25	45,738,373.90	44,376,179.95	40,166,327.50	138,021	129,797	123,035	117,763	119,640

Production of bituminous coal and coke, and number of employes in and about the mines by counties.

Counties.	Coal.				
	1893.	1892.	1891.	1890.	1889.
Allegheny.	6,894,510.25	7,227,370.15	6,216,428	6,377,054.33	4,681,349
Armstrong.	300,222	349,561.75	299,945	385,720	239,626
Beaver.	151,346	188,379	139,114	101,786	36,864
Bedford.	490,416	565,760	413,537	319,917	270,652
Blair.	170,144	278,485	218,955	298,196	388,137
Bradford.	42,739	53,517	68,697	125,707	129,056
Butler.	160,443	132,040.50	100,273	132,448	185,409
Cambria.	3,377,459	3,289,134	3,073,078	2,526,001	1,450,352
Cameron.	1,250,351	1,772,431.61	1,600,300	376,566.11	1,800
Centre.	1,732,622	758,873.25	739,068	435,698	395,203
Clearfield.	6,082,924	6,631,013.18	6,706,015.80	6,549,546.33	5,125,174
Clinton.	94,582	98,243	131,619	138,000	99,074
Elk.	617,878	726,852.19	739,058	766,917	644,300
Fayette.	6,105,845	7,791,330	5,758,200	6,790,277	5,899,243
Greene.	291,739	350,005	277,938	325,822	3,216
Huntingdon.	359,170	638,667	539,628	246,234	246,234
Indiana.	3,072,297	3,682,774.38	3,600,032.45	315,968	185,381
Jefferson.	197,277	119,539	172,197.50	3,147,352	2,783,814
Lawrence.	53,192	17,000	15,737	136,687	140,003.50
Lycoming.	19,463	21,058	15,737	11,483.50	508,236.50
McKean.	486,049	442,632.75	579,770	491,835	518,176
Mercer.	483,770	423,179	441,070	275,554	1,006,135
Somerset.	942,252	964,756	993,259	875,406	1,748,782
Tioga.	3,414,444	2,726,341	2,407,837	2,471,240.78	7,386,511.85
Washington.	7,583,346	8,696,364.35	7,695,867.95	7,308,841.85	34,555,644.85
Westmoreland.	43,421,898.25	46,576,576.11	41,787,644.75	40,784,003.90	
Total.					

Production of bituminous coal and coke, and number of employees in and about the mines by counties—Continued.

Counties.	Coke.					Number of Emptic es.			
	1893.	1892.	91.	1889.	1888.	1891.	.	1889.	
Allegheny,	3,000	12,000	10,392	34,141	14,351	13,447	12,305	11,915	
Armstrong,	6,596		11,314.50	14,012	632	740	573	456	
Beaver,	100		56		293	467	264	214	
Bedford,	3,000	25,376	1,759	25,159	967	951	842	665	
Blair,	39,361	101,117	79,252	84,147	536	635	624	631	
Bradford,					83	122	169	321	
Builer,				4,729	325	372	385	485	
Cambria,	122,219	217,538	333,899	316,142	6,691	5,672	5,229	2,915	
Carbon,				243,884				4,300	
Centre,	83,203	27,600	62,976.06	42,855	2,416	729	858	602	
Clarion,	131,360	105,568	197,793	86,744	10,893	10,188	9,251	8,210	
Clearfield,					180	173	200	134	
Clinton,					1,332	1,343	1,365	1,303	
Elk,	29,421	17,181	2,500	4,864.10	11,185	11,621	11,076	9,487	
Fayette,	3,011,054	4,268,825	3,998,623	3,648,297				9	
Greene,								583	
Huntingdon,	29,103	41,604	52,825	48,805	630	668	597	620	
Indiana,	33,620	40,234	105,623	83,700	873	1,021	822	362	
Jefferson,	255,473	394,495	312,398	301,122	4,234	5,374	5,623	4,133	
Lawrence,					460	267	368	279	
Lycoming,									
Mechan,									
Monroe,									
Mercer,									
Monraset,	9,453	11,745	26,657	39	1,010	1,112	1,098	1,111	
Northampton,	354	1,093	2,110	554	577	554	576	453	
Washington,			1,400	2,822.50	2,230	2,263	1,937	1,357	
Westmoreland,	1,700,889.90	2,636,454.87	2,185,096	2,382,433.90	13,016	13,093	12,958	11,688	
Total.	5,549,296.90	7,891,630.87	6,591,542.56	8,431,140.85	81,900	78,789	73,923	65,944	
				6,973,032.90				61,076	

Days in operation of Anthracite Collieries.

Name of Colliery.	Name of Operator.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Austin.	Austin Coal Company.							163.50
Anchor.	Philadelphia and Reading Coal and Iron Co.,							
Archbold.	Delaware, Lackawanna & Western R. R. Co.,	201	207	142.70	191.80	172.10	71	188.50
Alden.	do.	261	270	224.50	2.49	232.20	176.60	188.05
Alpen.	do.	201	226	133.20	179	169	177.20	168.05
Avondale.	do.	219	241½	222.15	189.45	199.30	201.80	225.60
Alaska shaft.	do.					223.60	237	
Avoca.	do.					205		
Amora.	do.			17	258.80		178.35	171.05
Abbott slope.	do.				208.50	196.50		
Alaska.	Philadelphia and Reading Coal and Iron Co.,							202.65
Albright washery.	Albright Coal Company,							135.40
Buck Mountain.	Buck Mountain Coal Company,	191	146	138.70	215.10	202.20	195.20	179.50
Butler.	Butler Colliery Company,				137	213		
Ben Franklin.	Donley & Baumgardner,			267.15		243.45		
Big Mountain.	Patterson, Jewell & Co.,							
Bear Ridge No. 1.	Bear Ridge Coal Company,							206.48
Bear Ridge No. 2.	do.							
Big Mine Run.	Jeremiah Taylor & Co.,	250	223	237.25	231.50			
Brenzol.	Brenzol & Cleaver,							
Bear Valley.	Philadelphia and Reading Coal and Iron Co.,	242½	251	172.70	255.85	213.70	225	184.90
Burnside.	do.	241	254	167.55	210.30	240.25	116.55	194.43
Bask.	do.	232	197½	55.80	148.20	237.10	216.73	193.85
Bask. Run.	do.	251	224	188.45	161.05	171.20	180.45	179.70
Boston Run.	do.	226	210	177.40	2.4.10	249.75	220.25	218
Buckville.	do.							
Beechwood.	do.	233	214	232	171	220	214	210.65
Bennett.	Waddel & Walters,							209.75
Black Diamond.	Haddock & Steel,	176	280					209.65
Boston.	Butler Coal Company,				162			
Bellevue shaft and slope.	Delaware, Lackawanna and Western R. R. Co.,	200½	386	147.30	135.50	156.80	185.3	174.90
Bridge.	Bridge Coal Company, Limited.	272	119					
Brisbin.	Delaware, Lackawanna and Western R. R. Co.,	17	221	143.90	208.20	190.80	180.1	187.80
Blanchard.	Northwestern Coal Company,		235	199.75	201.50	206.25	172	208.75
Baltimore slope.	Delaware and Hudson Canal Company,	197					208.75	197.50
Baltimore shaft.	do.						208.75	216.50
Breaker No. 1.	do.	222	243	226.50	189.74	195		
Breaker No. 2.	Susquehanna Coal Company,	242	280½	239.80				
Breaker No. 3.	Babylon Coal Company,						174.50	169.20
Breaker No. 4.	do.	246	287	239				
Breaker No. 5.	do.	246		235.25				
Breaker No. 1.	Kingston Coal Company,							
Breaker No. 2.	do.							
Boston mines.	Delaware and Hudson Canal Company,	50	297	150.50	191.75	183.25	160.50	183
Beaver Meadow.	Coxe & Co.,	193	238	390	268	285	221	210
Beaver Brook.	Miscellaneous,	137	161	218	211.40	224	226.6	237.20
Black Ridge.	do.	160	132					
Black Diamond.	Schwinn, Robertson & Co.,			276	175			294.85

[illegible]

Days in operation of Anthracite Collieries—Continued.

Name of Colliery.	Name of Operator.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Colliery No. 9.	Lehigh Coal and Navigation Company,						237.1	249.50
Colliery No. 1.	do.						240.7	255.7
Colliery, . . .	Smith & Keiser						246	268.25
Colliery, . . .	Excelsior Coal Company,						285	247.80
Central,	Excelsior Coal Company,						240	247.80
Crystal,	Joseph Bradley & Co.,	242	219	211.35	185	199.70	197.80	173.70
Colliery No. 4.	J., C. & N. Company,						215.2	247.10
Coal Brook Tunnel mines.				284.25	224.50			
Clinton slope and tunnel,				147	148.75	221.25	221.25	215.50
Columbia,								162.80
Columbus No. 1.	Shaeffer, Bickel & Co.,							89.40
Diamond No. 1.	Charles Parrish & Co.,	114						
Delaware and Hudson Canal Company,	Delaware and Hudson Canal Company,	122	164		214.75	221.50	223.75	224.75
Dunn shaft and slope,	Pennsylvania Anthracite Coal Company,	111	164		194	203.80		
Dolph,	Dolph Coal Company, Limited,	202	163	168.50	155	144.50	98	174.50
Dunmore breaker,	Pennsylvania Coal Company,							
Dickson,	Delaware and Hudson Canal Company,	227	241		225.50	230.25	222½	225
Dodge,	do.	155	207	233.75	186.80	191.70	185.8	185.10
Diamond No. 2.	do.	135½	201	146.80			180.9	
Diamond Tripp shaft,	L. & W. B. Coal Company,	206	137	151.70	203.40	191.50		195.90
Diamond,	do.							
Dodson,	Dodson,	185½	200	137.70	193.85	220.75	234.35	215.40
Derrance,	Coxe Bros. & Co.,	240	225½	172.45	237.05	235.60	199.35	171.10
Derringer,	Oliver Diston,	241	221	231.40			255	281
Dierpen,	John Lawrence,	212	240		241.10	264	170	211.55
Dunning & Bro.,		205	200	204.85				
Drift No. 1 and 2,	Coxe Bros. & Co.,	204		565				270
Derriner & Gowen,	do.			574	401	287	252	
Derriere,	do.			574	292	295		
Derriere,	Ebervale Coal Company,							228
Enterprise,	H. C. Roberts & Co.,							223
East Boston,	William G. Payne & Co.,	235		145	156	222.80	225.60	167.40
Empire No. 4.	Charles Parrish & Co.,				198.25	202.45	180.40	
Excelsior,	Excelsior Coal Mining Company,	274	272	265.80	272	287	249.90	247.10
Eagle Vein,	George W. Johns & Bro.,							
Ellangowan,	Philadelphia and Reading Coal and Iron Co.,	258	245	253.56	244.75	235.05	209.75	209.05
Elmwood,	do.	211	249	232.40	210.90	232.40	181.20	136.95
Eagle Hill shaft,	do.	257	249	227	226	226	205	213.60
East Franklin,	do.		35	233	163	196	178	3.20
East,	Lehigh Valley Coal Company,		213½	132	87.45	143.60	133.70	176.60
Exeter,	A. Langdon,	36		126	136.25	178	215.50	
Enterprise,	Florence Coal Company,	222	239	226.50	196.25	184.90	168.70	204.80
Elmwood,	Delaware and Hudson Canal Company,	275	294	274	240.85	184.90	222	220½
Eddy Creek,	Jones, Shipson & Co.,	271	234	218	174.75	88.75		
Edson mines,	Jongerton Coal company (limited),	271	234	218.50				
Edson,	Edson,	228½	203	183.90	168	201	208.2	195
East Earl Louf No. 5,	Edson,							195
Eagle,	Thomas Crockett,				243.40		230	243

Evans,	Evans Mine Company,	197	244½	198	183.75	237	261.1	213.50
Erie,	Hillside Coal and Iron Company,	197	244½	196.05	183.75	237	240.75	
Empire,	Lackawanna and Wilkes-Barre Coal Co.,	197½		196.05				
Elk Hill Coal and Iron Company,								
East End,							232.75	
East Crystal Ridge,	A. Pardee & Co.,							30.00
Eckley No. 2,	do.	188	234	301	277	259	259	270
Eckley No. 5,								
Eschvale Nos. 1 and 3,	Linderman, Steer & Co.	123½			247.30	192.40	194	211
East Sugar Loaf No. 1,	do.	184½		223	237.40	246	194	211
East Sugar Loaf No. 2,	do.			223			196	
East Sugar Loaf No. 3,	do.			252		243.30	196	
East Sugar Loaf No. 5,	do.	192½					194	211
East Sugar Loaf No. 6,	do.							
Enterprise,	Thomas Baumgardner & Co.,	233	197	84	15			
Eagle,	Philadelphia and Reading Coal and Iron Co.,	269	235	267	283	278	287	250
Ellsworth,	John R. Davis,	160	220	189	214	130	230	200
East Lehigh,	Mitchell and Shepp.	217½						
East Boston shaft,								
Ewen breaker—Tunnel No. 1; slope No. 4;								
shaft No. 7; shaft No. 8,	Pennsylvania Coal Company,	159	213½	319	200.80	188.10	216.75	220.80
Eckley No. 10,	Oxre Bros. & Co.,	249	247	213	215.75	244	217.25	205.50
Enterprise,	Enterprise Coal Company,	251	268		35			
Evans,	Miscellaneous,			204				237
Franklin,	R. K. Morgan, superintendent,							10
Filer,	G. Filer and T. Livey,	223	220	220	111		246	279.50
Furnace,	Philadelphia and Reading Coal and Iron Co.,							
Forestville,	do.	253						
Forty Fort,	Wyoming Valley Coal Company,			218.50				
Fuler,	Delaware, Lackawanna & Western R. R. Co.,	264	270	219				
Forest City,	Hillside Coal and Iron Company,	206½	177	178.25				
Fort Lawn,	Fort Lawn Coal Company, Limited,	134	252½	100.50	122.15	194.50	170.25	165.22
Franklin,	Grimm's, Thomas & Co.,	245	243	92.50	82	97	214	217
Franklin Slope, now Mt. Jessup,		50	151			200		
Fairmount,	Jessup Coal Company,	134		211			205	60
Frisbie Coal Company,			240		195	188.90	204.80	240.20
Filer's slope,								
Flowers Field,			149	143			173	
Ferndale,							84	181.40
Feger Ridge,	John Murrin,				192	220		
Fall Brook tunnel,	Burlier Coal Company,							
Fernwood shaft,	P. McCrearty & Peiffer,							
Glen,	W. A. M. Grier,							
Glen City,	H. J. Toudy,							
Greenback,	J. C. Hayden & Co.,	150	236	162.60	223.80	211.10	161.80	156.60
Glendon,	Philadelphia and Reading Coal and Iron Co.,							
George Fales,	do.							
Grand,	do.							
Good Spring,	do.	239	15	217.90	234.60	225.20	201.95	203.05
Gilberton,	do.	232	242	251.25	238.05	286	207.00	258.10
Glendower,	do.	232	122	36	167	221	210	156.55
Glendale,	do.							
Glendale,	Glendale Coal Company,	150½	183½		139.30	155	58.6	211.90
Green Hill,	Pennsylvania Anthracite Coal Company,	230	272	226.50	215	225½	225½	215.90
Grassy Island,	Grassy Island Coal Company, Limited,	153½	200	235	19.30	292.75		
Grassy Island,	Delaware and Hudson Canal Company,	83	252	136.50	210.50	302.50		222½
Grand Tunnel No. 3,	Susquehanna Coal Company,	195	237				224.50	

Days in operation of Anthracite Collieries—Continued.

Name of Colliery.	Name of Operator.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Gaylord, ...	Kingsion Coal Company.	184½	210	172.50	161.75	239	245.55	241.65
Gowen, ...	Coxe Bros. & Co., ...	261½	621	233.60	235.85	243.40	207.85	281
Girard Mammoth, ...	Philadelphia and Reading Coal and Iron Co.,	227	227	89.80	235.85	243.40	207.85	205.80
Garfield, ...	Garfield Coal Company, Limited, ...	171½	235	114	176.25	244.75	206.9	217
Greenwood shaft, ...	Hildale Coal and Iron Company, ...	206	206	186	232	234	250	174.25
Glenwood shaft, ...	Theo. Oliver, ...	243	243	12	197	237.75	237.75	213
Greenwood No. 13, ...	Pennsylvania Coal Company, ...	243	243	12	197	237.75	237.75	196.50
Greenwood, ...	do.	243	243	12	197	237.75	237.75	196.50
Gypsy Grove, ...	do.	243	243	12	197	237.75	237.75	196.50
Hollenback, ...	Robert L. Poole, ...	274	228	146.20	215.30	203.50	184	164.80
Hillman, ...	H. L. Hillman, ...	274	228	146.20	215.30	203.50	184	164.80
Humbolt, ...	A. Anderson, Steer & Co., ...	144½	228	146.20	215.30	203.50	184	164.80
Hazleton No. 1, ...	A. Pardee & Co., ...	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 6, ...	Philadelphia and Reading Coal and Iron Co.,	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 5, ...	Hillside Coal and Iron Company, ...	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 4, ...	J. Lamdon & Co., ...	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 3, ...	Philadelphia and Reading Coal and Iron Co.,	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 2, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 1, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 2, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 3, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 4, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 5, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 6, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 7, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 8, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 9, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 10, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 11, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 12, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 13, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 14, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 15, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 16, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 17, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 18, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 19, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 20, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 21, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 22, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 23, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 24, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 25, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 26, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 27, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 28, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 29, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 30, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 31, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 32, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 33, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 34, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 35, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 36, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 37, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 38, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 39, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 40, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 41, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 42, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 43, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 44, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 45, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 46, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 47, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 48, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 49, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 50, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 51, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 52, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 53, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 54, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 55, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 56, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 57, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 58, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 59, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 60, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 61, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 62, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 63, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 64, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 65, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 66, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 67, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 68, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 69, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 70, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 71, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 72, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 73, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 74, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 75, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 76, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 77, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 78, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 79, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 80, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 81, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 82, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 83, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 84, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 85, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 86, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 87, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 88, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 89, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 90, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 91, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 92, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 93, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 94, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 95, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 96, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 97, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 98, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 99, ...	do.	249	200	191	229.30	243.50	141.8	141.8
Hazleton No. 100, ...	do.	249	200	191	229.30	243.50	141.8	141.8

Hampton shaft,	Delaware, Lackawanna & Western R. R. Co.,	150	142.80	189.30	197	188	186.10
Hunt shaft,	do.	211½	119.4	184½	207.30	243.45	212.20
Henry Clay,	Philadelphia and Reading Coal and Iron Co.,	261	207.15	187.15	207.15	216	
Hickory Ridge,	Union Coal Company,	240	175.50	148.25	193.70		
Honey Brook No. 2,	Lackawanna Western Bituminous Coal Co.,	188	249	251.20	238.70		
Hoyt shaft,	Pennsylvania Coal Company,			215.25	200.15		
Hazleton,	A. Pardee & Co.,						212.30
Indian Ridge,	Philadelphia and Reading Coal and Iron Co.,	250½	184.50	248.55	227.50	204.90	131.85
Jersey No. 1,	Lackawanna and Western Coal Company,	243		113.85	185.55	167.20	153.40
Jersey No. 2,	do.	263	231.75	207.75	202.50	224.25	213.84
Jersey No. 3,	do.	249		69.50	175.60	165.4	179.90
Jersey No. 4,	do.	221	211.20	182.30	165.80	168.6	178.90
Jersey No. 5 slope,	do.		18.80	180.40	234.70	187.7	185
Jones Simpson & Co.,	John Jermy, n,			206.90	213	229.9	206.75
Jeddo No. 3,	G. B. Markle & Co.,			258	236	204	221
Jeddo No. 4,	do.			238	244	227	105
Kline,	John L. Kline,						
Kohinoor,	Richard Heckscher & Co.,			255.50	255.75		
Kebley's Run,	Thomas Coal Company,	267	234.25			240.75	270.50
Keystone,	Philadelphia and Reading Coal and Iron Co.,	286	171.25	135.55	202.15	187.20	178.60
Knickerbocker,	do.	222	221.50	206.60	245.60	214.80	205.20
Keystone,	Hillside Coal and Iron Company,	254	224	225	211.50	176.35	174.50
Kohinoor,	Philadelphia and Reading Coal and Iron Co.,	246	241.50	235.15	203.35	178.30	210.50
Kalmia,	do.	9					
Kaska William,	Alliance Coal Company,	202	205	135	189	156	
Kechline,	Kaska Kechline,	125	15	30		250	
Keystone slope and drift,	P. O'Connor,	259	192	207	236.35	34.20	
Katyid tunnel,	do.	167½	191	187.25	207	202.25	203.75
King,							
Little Mine Run,	Pfeiffer & Garity,						
Lance No. 11,	Chas. Parrish & Co.,	189	149.50	231	251.75	242.25	167.55
Luke Fidler,	Mineral Railroad and Mining Company,	241½	223.25	243.30	242.30	210.15	197.35
Locust Spring,	Philadelphia and Reading Coal and Iron Co.,						
Locust Run,	do.						
Lawrence,	Lawrence, Markle & Co.,	302		186.25	200		
Leggett's Creek,	Delaware and Hudson Canal Company,	268	232.50	213.25	220	234.25	224½
Lackawanna Coal Company,	Lackawanna Coal Company,	252	213.30	230.90	300.20	217.4	215.10
Laurel Run,	Delaware and Hudson Canal Company,	220	209	230.15	199.75	210.50	221.50
Laws,	Pennsylvania Coal Company,	222			199.75		
Lance No. 11,	Lackawanna Western Bituminous Coal Co.,	210	172.50	208.25	203.70	174.95	
Laurel Hill,	A. Pardee & Co.,	217	248.50	208.20	232.30	196.5	187.80
Lansford No. 4,	Lehigh Coal and Navigation Company,	182½		253.30			
Lansford No. 5,	do.	151		208.60			
Lansford No. 6,	do.	151		208.60			
Lansford No. 7,	do.	151		257.40			
Lansford No. 8,	do.	170½		279.20			
Lansford No. 9,	do.						
Lansford No. 1,	do.						
Lee,	Newport Coal Company,			192.20	175.30	309	
Lee,	Pardee Bros. & Co.,	183½	103	39.50	72.80	181.20	162.55
Lafayette No. 2,	do.	142	212.50	186.50	235.60	210	248.60
Latimer No. 3,	do.	300	250			220.1	250.10
Lawrence,	Lawrence & Brown,	284				194.25	248
Locust Mountain,	W. J. Lloyd,			249.80	247.10	215.90	206.95
Locust Gap,	Philadelphia and Reading Coal and Iron Co.,	249	238.40				
Lancaster,	Smith & Keiser,	210½	87.50				
Logan,	Lewis A. Riley & Co.,	240½	201.40	190.50	195.70	198.15	181.20
Lincoln,	Philadelphia and Reading Coal and Iron Co.,	233	268				
Lehigh No. 1,	Lehigh Coal and Navigation Company,	249				238.20	

Days in operation of Anthracite Collieries—Continued.

Name of Colliery.	Name of Operator.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Lehigh No. 8.	Lehigh Coal and Navigation Company.	179	212	252	245	212	236	246
Lehigh No. 10.	do.	183	188	250	256	228	203	247 15
Lehigh No. 11.	do.	164	211	219	203	219	221	224 05
Lehigh No. 12.	do.	154	211	219	116	216	215	106 05
Lehigh No. 13.	do.	269						
Lehigh No. 3.	Swartz, Oliver & Co.,	239	239	253				
Lehigh No. 9.	Miscellaneous,	200	219	253		227 50		
Lehigh No. 4.	Lehigh Coal and Navigation Company,	200	200	250		115 80		
Lehigh No. 5.	do.	116	116	250		219 80		
Lang Cliffe.	do.			25 50	137 10	239 55	139 80	134 20
Louise drifts.	Ramb Coal Company.							35 70
Midvale slope.	Lehigh Valley Coal Company,				42 45	22 80		
Matby.	Caleb S. Matby.		13	20	103 90	132 10	133 5	134 65
Mt. Pleasant.	Partee, Sons & Co.,							
Mt. Lookout shaft.	Mt. Lookout Coal Company.					71 50	133 20	135 25
Moulton.	George W. Johns & Bro.,	239	217	180 55	194 70	225 40	155	200 45
Merrim.	Philadelphia and Reading Coal and Iron Co.,	242½	254½	238 50	245 60	163	180	211 55
Morning star tunnel.	do.					132		264
Maple Hill gap.	John A. Hutchins & Co.							
Mine Hill.	Philadelphia and Reading Coal and Iron Co.,							
Mt. Carmel shaft.	do.						153 5	
Meadow Brook shaft.	do.							216 55
Manville.	William Connell & Co.,	218½	231½	185 70	185 60	226	212	215 30
Marvine.	Delaware, Lackawanna and Western R. R. Co.,	123	108	65 25	77	74 50	144 3	192 12
Mineral Springs.	Delaware and Hudson Canal Company,	242½	254	229	222 50	221 50	238 25	238 14
Mill Creek.	Lehigh Valley Coal Company,	202	192	41 50	88 90	16 60		
Mosler.	Delaware and Hudson Canal Company,	200	228	221	154 25	141	221	15 75
Mt. Pleasant.	Butler Coal Company,	222	249	79	40	53 20		
Moffit.	William T. Smith,	137	228	72	211 90	200	213 7	214 13
Morea.	do.	206½	235	210 80	177	185 10	166 40	175 45
Milnesville.	Dodson Coal Company.				223	226 60	227 2	234
Mt. Pleasant.		126	208	213 50	192			
Monitor.	Philadelphia and Reading Coal and Iron Co.,	145	194	172	132	169 35	193 30	
Mt. Carmel.	Thomas M. Richter & Co.,	215	231	108 05	142 65	237	159 30	159 30
Morris Ridge.	Isaac May & Co.,	234	231½	215 90	176 70	237	203 20	179 30
Middle Creek shaft.	Philadelphia and Reading Coal and Iron Co.,	257½	269	242	188 50	194 80	203 50	187 30
Middle Lehigh.	do.	230	228	217	150	170	205	
Middle Lehigh.	Mill Creek Coal Company,			223	205	210		
Meadow Brook tunnel.	William Connell & Co.	196	234½	179 50	183 10	191 40	211 4	205 25
Manville shaft.	Delaware and Hudson Canal Company,	121	125	30	77	73 50	169	113 30
Midvale.	Midvale Coal Company,					247		
Mt. Vernon.	B. M. Winton & Co.,						81	
Murry & Jackson shaft.	Mt. Vernon.					294	204	
Mahanoy Jig House.	Hillside Iron and Coal Company.				292		213 20	
Morning Star.	J. A. Hutchins & Co.,						180	
Milford.	Docker & Co.,							193 20

Milnhollow shaft,	Thomas Waddell	201	217	192.10	205.6
Marshwood slope and tunnel,	Moosie Mt. Coal Company,	120	217	183	202
Midway shaft,	do.				187
Midway slope,	Mt. Jessup Coal Company,			94.40	171.50
Midway tunnel,	DelaWare and Hudson Canal Company,		186	224.50	244.48
Murray's	Murray, Cooney & Co.,				
Mountain Lake L. & C. Co.,					
Midvalley No. 2,	Midvalley Coal Company,				
Nottingham No. 15,	Chas. Parrish & Co.,	191½	148.85	171.90	225.95
North Franklin No. 2,	Philadelphia and Reading Coal and Iron Co.,	247	139.90	232.18	209.70
North Ashland,	do.	261	247.50	244.10	215.90
North Mahanoy,	do.	252½			212
National slope and shaft,	Wm. Connell & Co.,	196	177.75	183.10	208.25
Nottingham,	Lackawanna & Western Bituminous Coal Co.,	206½			
No. 10 shaft,	Pennsylvania Coal Company,	217			132.75
Newport,	Susquehanna Coal Company,		212		216.75
No. 3,	A. Pardee & Co., Hazleton,	224	108.50	204.20	
No. 6,	do.	168	126	134	125.30
No. 13 shaft,	Pennsylvania Coal Company,				234.75
Nesquehoning No. 3,	Lehigh Coal and Navigation Company,	155	272		
North Laurel ridge,	S. H. Barrett,	151			
New Lincoln,	Levi Miller & Co.,	210	263	224	
Shafts Nos. 1 and 8,	Pennsylvania Coal Company,				218.75
Nos. 1 and 4 shafts,	Kingston Coal Company,	455	332.75	177.77	200.75
Nos. 2 and 3 shafts,	do.	240½	183.65	188.05	274.20
Nos. 1 and 2,	DelaWare and Hudson Canal Company,	217	120.50	191.25	250.90
No. 3,	do.	254	186.50	181.50	202.90
No. 4,	do.	257	224.25		176
No. 5,	do.	217	234.55		206.25
Nelson,	A. L. Langdon & Co.,	207	244.50	30.25	270.25
New Boston,	Mill Creek Coal Company,	249			214
Natalie,	Paterson Mine Company,				
No. 2,	Lunderman & Skeer,	200			207
Nos. 5 and 6,	do.	221			
No. 3 shaft and White Bridge tunnel,	DelaWare and Hudson Canal Company,		205.75		
No. 3 shafts,	do.		203.75		
No. 9 shaft,	Pennsylvania Coal Company,				
No. 14 shaft and tunnel,	do.				
Oak Hill,	New York and Scranton Coal Company,	96	225.40	53.80	201.75
Oxford,	Philadelphia and Reading Coal and Iron Co.,	228½	196	217	223
Oxphar No. 2,	Pennsylvania Coal Company,	210	173.50	200	185.80
Oakdale No. 1,	DelaWare Lackawanna and Western R.R.Co.,	215	146	186.10	205.25
Oakdale No. 2,	Leislering & Co.,			204	187.80
Ontario No. 1 mine,	DelaWare and Hudson Canal Company,	219	122.75	42.75	190
Old Forge slopes Nos. 1 and 2,	Coxe Bros. & Co.,				215.14
Oak Hill,	G. B. Markle & Co.,	140	248		254
Oneida,	do.	197	242		239
Oakdale No. 1,	Philadelphia and Reading Coal and Iron Co.,	145½			189.90
Oakdale No. 2,	Ruse & Moser,	206			
Ontario No. 1 mine,	Harry W. Bellman,	287	219	289	274.65
Peenix,	Crinkshank & Emmes,		120	369.40	231.5
Peerless,	Mineral Railroad and Mining Company,			40.50	161.20
Pioneer,	Kautner, Vaughn & Co.,				
Patterson,	Patterson Ore Mining Company,		25		212
Pettibone,	DelaWare Lackawanna and Western,				200

Days in operation of Anthracite Collieries—Continued.

Name of Colliery.	Name of Operator.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Primrose.	Primrose Coal Company.	..	..	..	221	221	..	247
Pots, Nos. 1 and 2.	Philadelphia and Reading Coal and Iron Co.,	..	..	..	..	120.10	133.30	87.95
Preston No. 3.	do.	..	..	..	..	..	..	..
Prospect.	do.	262	235	..	..	152.40	191.70	182.85
Plank Ridge.	Leligh Valley Coal Company.	..	..	..	..	..	196.45	177.75
Philadelphia and Reading Coal and Iron Co.,	Philadelphia and Reading Coal and Iron Co.,	..	..	..	..	..	..	..
Pottsville.	do.	..	..	..	..	..	..	..
Pine Forest.	do.	..	..	..	..	..	..	..
Phoenix Park No. 2.	do.	..	..	..	39	239	189	206.35
Phoenix Park No. 3.	do.	..	..	..	..	..	..	..
Pyne.	do.	243	240	249	198	114	203	193.20
Pancoat.	Pancoat Coal Company (Limited).	..	..	..	186.80	189.70	185.1	183.60
Powderly.	Delaware and Hudson Canal Company.	222	226	199.50	205.75	228.75	182.75	203.40
Prospect.	Leligh Valley Coal Company.	223	248	210.25	186.60	205.75	223.25	202.75
Pine Ridge.	Delaware and Hudson Canal Company.	223	224	178	195.30	203.55	..	..
Pierce.	Pierce Coal Company (Limited).	250	253	236.50	234	209.55	248.75	211.30
Pyne shaft and slope.	Delaware, Lackawanna and Western R. R. Co.	209	146	102.20	72.60	147.90	146.5	80.70
Plymouth No. 2.	do.	203	183	150	..	..	..	..
Plymouth No. 3.	do.	..	..	..	..	..	..	..
Plymouth No. 4.	do.	..	..	..	..	..	..	..
Plymouth No. 5.	do.	..	..	..	..	..	..	..
Parrish.	do.	..	..	..	..	..	..	..
Pand Creek.	do.	169	247	262.60	205.20	205.95	160.40	172.95
Packer No. 1.	do.	184	212	273	138	177.40	..	..
Packer No. 2.	Leligh Valley Coal Company.	..	167	76.50	152.45	151.30	209.80	155.40
Packer No. 3.	do.	136	210	159.55	99.55	173.50	205.80	194.05
Packer No. 4.	do.	132	175	167.95	148.15	149.20	89.50	187
Packer No. 5.	do.	112	186	133.95	175.10	150.95	87.00	189.25
Park No. 1.	Lentz, Lilly & Co.,	..	..	..	..	..	..	..
Park No. 2.	do.	205	244	199.10	190.03	212.90	177.80	172.40
Primrose.	Nevills & Co.,	244	256	191	..	..	202.50	..
Poerless.	Philadelphia and Reading Coal and Iron Co.,	..	..	..	..	243.45	..	..
Pennsylvania.	Union Coal Company.	253	213	216.50	189.25	287.75	281.80	241.40
Phoenix No. 3.	Philadelphia and Reading Coal and Iron Co.,	..	..	..	..	..	..	..
Palmer vein.	Alliance Coal Company.	..	52	188	..	..	..	154
Peach Orchard.	R. White & Co.	..	..	..	..	..	200	..
Pine Dale.	Stenmer & Co.	..	..	..	..	..	..	..
Peach Mountain.	Morgan Williams.	..	..	..	..	..	..	..
Pine Brook shaft.	Lackawanna Iron and Coal Company.	173	303	182.60	205.30	184.30	194.4	161.10
Peekville tunnel.	do.	..	..	..	..	..	..	..
Providence shaft.	Providence Coal Company.	..	..	172	179	231	229	161.60
Ransoh.	William H. Yohle.	..	..	..	..	..	..	..
Reliance.	Philadelphia and Reading Coal and Iron Co.,	234	231	127.85	179.95	215.45	192.85	164.45
Richardson.	do.	227	187	..	50	165	210	190.85
Richmonds.	Elk Hill Coal and Iron Company.	135	151	..	..	..	..	222.20
Rocket Brook.	Delaware and Hudson Canal Company.	259	265	254.50	186.50	242	232	216.10
Rawnel.	Newark Coal Company.	..	..	..	179.70	221	..	189.10
Red Ash.	Wm. Walters.	..	..	..	..	..	150	218

Riverside shaft, Maryville.	Thos. Waddel.	194 ¹	178.15	171.50	188.80	6.90	151	225.30
Red Ash No. 1.		207	175	171.50	200.75		186	192.80
Red Ash No. 2.		203	177	220.05	194.75		180	184.20
Reynolds		100	214					188.85
Royal Oak.								
Reppier.								
Rush Brook shaft.				189	191.40		200	141
Reserve.			212	240	215			55
Richmond No. 4.								78.25
Richards.								
Short Mountain.		283	272.25				306.50	
Spring Mountain for 1885, and following years: Nos. 1 and 2 for 1886, 1887, 1888 and 1889; Nos. 1 and 4.								
Susquehanna No. 1.	J. C. Hayden & Co.	298	453	467	489		207.1	218.50
Susquehanna No. 2.	Susquehanna Coal Company,			214	149.75			243.55
Susquehanna No. 3.	do.			214.05	264.65			243.55
Susquehanna No. 4.	do.			118.90	108.15			108.85
Susquehanna No. 5.	do.			214	149.75		222	
Susquehanna No. 6.	do.			214.05	264.65		222	
Susquehanna No. 7.	do.			214.05	264.65		222	
Susquehanna No. 8.	do.			214.05	264.65		222	
Susquehanna No. 9.	do.			222.55	270.80		254	
Susquehanna No. 10.	do.			222.55	270.80		254	
Susquehanna No. 11.	do.			222.55	270.80		254	
Susquehanna No. 12.	do.			222.55	270.80		254	
Susquehanna No. 13.	do.			222.55	270.80		254	
Susquehanna No. 14.	do.			222.55	270.80		254	
Susquehanna No. 15.	do.			222.55	270.80		254	
Susquehanna No. 16.	do.			222.55	270.80		254	
Susquehanna No. 17.	do.			222.55	270.80		254	
Susquehanna No. 18.	do.			222.55	270.80		254	
Susquehanna No. 19.	do.			222.55	270.80		254	
Susquehanna No. 20.	do.			222.55	270.80		254	
Susquehanna No. 21.	do.			222.55	270.80		254	
Susquehanna No. 22.	do.			222.55	270.80		254	
Susquehanna No. 23.	do.			222.55	270.80		254	
Susquehanna No. 24.	do.			222.55	270.80		254	
Susquehanna No. 25.	do.			222.55	270.80		254	
Susquehanna No. 26.	do.			222.55	270.80		254	
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Susquehanna No. 28.	do.			222.55	270.80		254	
Susquehanna No. 29.	do.			222.55	270.80		254	
Susquehanna No. 30.	do.			222.55	270.80		254	
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Susquehanna No. 144.	do.			222.55	270.80		254	
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Susquehanna No. 153.	do.			222.55	270.80		254	
Susquehanna No. 154.	do.			222.55	270.80		254	
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Susquehanna No. 160.	do.			222.55	270.80		254	
Susquehanna No. 161.	do.			222.55	270.80		254	
Susquehanna No. 162.	do.			222.55	270.80		254	
Susquehanna No. 163.	do.			222.55	270.80		254	
Susquehanna No. 164.	do.			222.55	270.80		254	
Susquehanna No. 165.	do.			222.				

Days in operation of Anthracite Collieries—Continued.

Name of Colliery.	Name of Operator.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
South Sugar Loaf, ...	A. Pardee & Co., ...	144½	208	196.50	155.30	136	181.9	189.50
Sunshine, ...	West Side Coal Company, ...	168	212	273	229.50	243.80	185	207
Sandy Run, ...	Philadelphia and Reading Coal and Iron Co., ...	245	292	149.10	243.20	248	200.5	201.55
Sutfolk, ...	do, ...	241	73	131	40			
Stanton, ...	S. H. Barrett, ...	198	193				209.35	
Shenandoah City, ...	Philadelphia and Reading Coal and Iron Co., ...							
Star, ...	Winton Coal Company, Limited, ...	202½	204	105	179.50	198.10		180.00
S. V. White Mines, ...	Pennsylvania Coal Company, ...	259	213	219.50	167.30	267	217.25	223.30
Shaft No. 14, ...	Silver Brook Coal Company, ...	111	210½	174.50	167	237	237	
Silver Brook, ...	do, ...	176	232	269	246	213	235	206
Silver Brook No. 2, ...	do, ...						83.30	255
Stirling, ...	Philadelphia and Reading Coal and Iron Co., ...			267.15		243.45		
Schuylkill Valley, ...	Pennsylvania Coal Company, ...	165	260	163	240	216	198.25	165
Shaft No. 1, ...	do, ...	230	282½	28.50	191	205		
Shaft No. 3, ...	do, ...	262	244	507.25	214	210.50		
Shaft No. 4, ...	Wm. Connell & Co., ...	288	274	212.50	185.10	191.40	212	208.25
Shard shaft, ...	Upper Lehigh Coal Company, ...	88½	239½	179.50		246.80		
Shaft No. 9, Hughestown—No. 10 breaker, ...	Pennsylvania Coal Company, ...	268	140					
Shaft No. 10, 10 fr. and Abbott's slope—No. 10 breaker, ...	do, ...	273½	205					
Shaft No. 1, Hughestown—Ewen breaker, ...	do, ...	290	224					
Shaft No. 8, Hughestown—Ewen breaker, ...	do, ...	240	224					
Slope No. 4, Jenkins—Ewen breaker, ...	do, ...	251½	224½				229	
Shaft No. 7, Jenkins—Ewen breaker, ...	do, ...	200½	227					
Schuylkill Valley, ...	Rich, White & Co., ...						156	
Shaft No. 5, Jenkins—No. 6 breaker, ...	do, ...	218	210½	202.75	202.75	216½		
Shaft No. 6, Jenkins—No. 6 breaker, ...	do, ...	218	210½	202.75	202.75	215.35		
Shaft No. 11, Jenkins—No. 6 breaker, ...	do, ...	218	221½	92				
Seven local sale mines, ...	Nelson & Cowan, ...	209		221		188		
Schooler shaft, ...	Lykens Valley Coal Company, ...					302.85		303
Short Mountain, ...	Coxe Bros & Co., ...	32	196	256	271	274	246	269
Sorkton, ...	Leitz, Lilley & Co., ...	165	54		255	172.40	188.30	193.20
Springdale, ...	Butler Colliery Company, ...			224.50				
Pinca shaft, ...	Lackawanna and Western Coal Company, ...		145		179.70		46.80	185.65
Shades-Barre, Nos. 3 and 5, ...	do, ...							
South Bend shaft, ...	H. Reese, ...		210					
Stevon's slope, ...	Philadelphia and Reading Coal and Iron Co., ...			30	279.40	246.30	230.30	194
St. Nicholas, ...	do, ...			92.80	232.70	178.30	219.65	207.15
Storr's shaft, ...	Delaware and Hudson Canal Company, ...			25.40	148.50	174.30	214	214.50
Shaft No. 2, ...	do, ...				168.25	155.75	210	211.50
Shaft No. 3, ...	do, ...				187.75	187.75	212	221.50
Shaft No. 4, ...	do, ...				162.75	189	217	216.25
Shaft No. 5, ...	do, ...				159.85	183.50	189	184.50
Sterrick Creek, ...	Sterrick Creek Coal Company, ...							172.40

Silver Creek shaft,	Philadelphia and Reading Coal and Iron Co.,						32.50
Tremont,	Peter L. Cole,				146		
Tunnel Ridge,	Philadelphia and Reading Coal and Iron Co.,	1931	189.90		216.25	219.50	
Turkey Run,	do.	2024	222.70		166.35		
Thomaston,	do.	244	193		241.30	186.85	211.65
Taylor's,	Delaware Lackawanna & Western R. R. Co.,	211	163.70		164.30		175.25
Tunnel No. 1,	Pennsylvania Coal Company,				194.80	182.1	189.30
Twin,	Butler Coal Company,	67					
Tonhicken,	Coxe Bros. & Co.,	200	278		221	191	189.10
Treskow,		142			303	222	211
Tunnel Ridge,	Philadelphia and Reading Coal and Iron Co.,	601	190.10				
Tripp & Co.,					255		216.55
Upper Lehigh Nos. 1, 2, 5, 6, 7 and 8,	Upper Lehigh Coal Company,	162	253		264.10	265.4	250
Upper Lehigh No. 4,	do	163	206		219.70		274.60
Von Storch shaft and slope,	Delaware and Hudson Canal Company,	233	227		224.20		217.50
Vulcan,	Wm. L. Williams,	2304	227		224.75	2294	30.25
Wilson Creek tunnel mines,	Delaware and Hudson Canal Company,	160	240				
West Hazel Dell,	Wm. Pelifer,				224.50	210.50	
Williamstown,	Summit Branch R. R. Company,	302	299.40		303.75	305.25	212.75
Waunamie No. 18,	Chas. Parrish & Co.,				196.30	190.90	305
William Penn,	E. N. G. Brooke,						166.90
West Side Coal Company,							254
West Shenandoah,	Philadelphia and Reading Coal and Iron Co.,	2334	248				
Wadesville shaft,	do.				58		
West Brookside,	do.				248.85	245.35	157.40
Wilcox,	Richard Cartwright,	273	282				
White Oak slope and drift,	Delaware and Hudson Canal Company,	248	250.50		215.25	239	2394
Wyoming,	Lehigh Valley Coal Company,	178	192		116.30	166.25	
Warrior Run,	do.	202	207		136.20	187.10	164.45
West End,	Lackawanna & Western Bituminous Coal Co.,	264	280		271.15	273.10	170.50
Wanamie,	Wm. Penn Coal Company,	2074	215		170.30	186.65	
William Penn,	Dunkleberger & Co.,	233	237		232	222	186.65
West Lehigh,	S. V. Winton,	239	258		147	220	259
Winton,						185.8	
Wolf Creek Diamond,	Watkin's Tunnel Company,	8	43				
Woodward,	do.				135.90	194.70	195.50
W. M. Weeks,			974		210		
West No. 1,	Linderman & Skeer,	225					
William A shaft,	Philadelphia and Reading Coal and Iron Co.,	794	221.35		242	181.7	185.40
West Bear Ridge,					205.05	201.35	
White Ridge,	G. H. Myers & Co.,	86			245.40		
Yorktown No. 5,	do.						
Yorktown No. 6,	do.	158	241		251.10		204.80
York Pn,	Lehigh Valley Coal Company,				138		200.45
Yatesville Jig,							

Days in operation of Bituminous Collieries.

Name of Colliery.	Name of Operator.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
American, ...	F. H. Coursin		149		232			
Alleghippa, ...	Bailey, Wilson & Co.,			122	214	163		
Ally, ...	J. C. Risher & Co.,			125	220	220	149	105
Ally's, ...	John Allison		220		250	208	201	
Allegheny, ...	Allegheny Coal Company,	174	217	225	225	248	165	
Altum Nos. 1, 2 and 3,	Fall Brook Coal Company,	256	212		176	218	179	194
Arnot Nos. 1, 2 and 3,	Blossburg Coal Company,	233	226	191	193	263	248	
Anchor, ...	Blasing & Davison,	200			244	240	296	80
Anchor, ...	Hunt & Coulter,	318	314	313	315	313	313	313
Argyle, ...	Bailey, Wilson & Co.,	107	132				139	113
Alleghippa, ...	J. C. Risher & Co.,	185	187		230	255	244	120
Anity, ...	Berwind, White & Co.,	134	323	451	281			214
Atlanta, ...	Welsh & Epley,	170		173	281			
Alice, ...	J. M. Schoonmaker,	226	222	286			236	185
Alexandria, ...	Alexandria Coal Company,	293	201	314	304	256	106	144
Ameyella, ...	J. M. Bigley,	168	201	200	240			
Arnold, ...	Arnold Co.-operating Coal Company,							
Alpsville, ...	Thomas Hackett & Co.,	295	300	216				
American, ...	Washington Coal Company,	290	220	102	300	220	160	150
Acme, ...	Stockdale Coal Company,	137	136	155	176	171	80	
Alue Hays, ...	W. S. B. Hays,	176	206	196	247	257	244	
Albany, ...	Snowdon & Hogg,						42	119
Arona, ...	Acbar Mining Company	118						
Acbar, ...	Penn Manufacturing and Supply Company,	221	165				130	218
Anchor, ...	Atlas Coke Company, Limited,	265	250	265	231	211	200	159
Aurora, ...	Hirst & Luke,					243	161	180
Aurora, ...	Clearfield Consolidated Coal Company,					247		
Anchor, ...	Lake Erie Gas Coal and Coke Company,	130				201	250	217
Atlantic, ...	Berwind, White & Co.,	260	153	220		202		
Ashtand, ...	Atlanta Coal Company,		198					
Atlantic No. 1, ...	do,							
Atlantic No. 2, ...	Jonathan Allison,	200						
Allison, ...	D. M. Anderson,	317	221	156	251	160		200
Anderson, ...	Acme Mining Company,	88		168.50	191	226	276	184
Acme, ...	Rochester and Pittsburgh Iron and Coal Co.,	295	235	253	241	248	282	246
Adrian Mines 1 and 2,		96	67	270	187			
Ashman, ...	Medora Coal Company,	113	123		220	146	285	270
Alexander, ...	Alder Run Coal and Coke Company,	200		356.50			150	219
Alder Run, ...	Avondale M. F. and Gas Company,		214	300	315	239		
Avondale, ...	Albion Coal Company,	42		241	225			
Albion, ...	Cambria Iron Company,	36		253	252	242	240	205
Atlas, ...	Cambria Coal and Coke Company,	94		115	254	214	170	142
Ansberry, ...	Alton Coal Company,				91			65
Avonmore, ...	Maher Coal and Coke Company,						271	263
Allen, ...	H. C. Freick Coke Company,			305	279	198		
Adelade, ...								

Allison,	John Allison,	250	221	154	118	250
Acme,	Acme Coal Company,	209				276
Apollo No. 2,	Mat'er Coal and Coke Company,					2474
Arnot Nos. 3, 4 and 5,	B'iss Coal Company,					80
Alpha,	Knight & Co.,					190
Ascroft,	J. Ascroft,		88			130
Bufoalo,	J. J. Statler,				100	
Beaver Nos. 1 and 2,	John M. Risher,					
Big Chief,	J. Blythe & Co.,			200	219	223
Bellevue,	Bellevue Coal Company,	130	75		75	200
Bear Rock,	Bear Rock Coal Company,					62
Blackburn,	Foster, Clarke & Co.,			157	120	
Blackwood,	Munhall Brothers,			86	32	
Beck's Run,	H. B. Hays & Bro.,					180
Buena Vista,	South West Coal Company,		144	196	156	246
Bowden,	Blythe & Co.,		288	253	273	198
Blythe,	Chartiers Valley Coal and Coke Company,		182	200	200	170
Big Soldier Run,	Bell, Lewis & Yates,				205	
Bower Hill,	A. J. Schultz,					
Beedle,	Beedle Brothers,					
Beech Cliff,	Imperial Coal Company,					
Benham,	Scott & Co.,	235	257	175	353	
Barnes,	Merced Mining and Manufacturing Co.,	169	236	164	100	142
Black Diamond,	Allen, Smith & Co.,	140	280	243	247	264
Bagdad,	Black Diamond Company,	267	265	265	264	231
Baltimore and Ohio,	W. P. Stillwagon,		256	267		
Beckert Nos. 1, 2, 3 and 4,	Lee & Patterson,	240	230			
Beechree Nos. 1 and 2,	Towanda Coal Company,	230	228	211		
Blaine's Run,	Rochester and Pltsburg Iron and Coal Co.,	300	223	287		
Ben's Creek,	J. M. Elliott,	191		247	232	222
Bedford,	L. H. Smith & Co.,	220	224	240	200	
Bennington slope,	Bedford Coal and Iron Company,					
Benedict,	Blair Iron and Coal Company,	287	95	302	270	
Brown,	Reed Brothers,	204	200	206	200	220
Belle-Vernon,	William Sweet and Brown,	187				
Bellevue,	H. K. Myers,		26	240	150	
Blackburn,	Bellevue Coal Company,			102		
Blackwood,	Foster, Clarke & Co.,	123	165			
Beck's Run,	Munhall Brothers,	71	84			
Beading,	H. B. Hays & Bro.,	205	210	198	243	227
Buena Vista,	Beading Brothers,	103				
Blythe No. 1,	South West Coal Company,					
Bridgeville,	Blythe Coal Company,	218	40			
Black Diamond,	A. J. Shuttle,	145	283	174	230	177
Buckeye,	W. J. Jackson,	275	206	200	200	150
Bessemer,	J. C. Cochran,	269	201	212	283	233
Black Diamond,	McClure & Co.,		175		139	
Beale,	W. H. Brown & Sons,	178	105	170	105	205
Beale,	J. M. Risher,	207	112	158	152	170
Brier Hill,	Patterson & Sautters,	230	170	40		175
Bowman,	Ell Leonard,		261		265	
Beaumont,			182	200		180
Beaver,	Beaver Coal and Coke Company,				225	221
Beaver Falls,	James Clayton,		240	246	268	200
Baker,	Scott & Co.,	203	246	193	220	

Days in operation of Bituminous Collieries—Continued.

Name of Colliery.	Name of Operator.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Breckinridge,	Breckinridge Coal Company,					280		205
Bethel,	Curtis' estate,	148					301	300
Berlin,	B. D. Morgan & Co.,	200	200	200		142	240	280
Bloomington No. 4,						240	196	
Blairsville,	Jacob Graft,		300					
Benton No. 2,	Benton Coal Company,							
Benton No. 1,	do.	300						
Black Diamond,	R. A. Jackson,							204
Bell Bridge,	Bell Bridge Coal Company,	200	200		200			90
Beech Grove,	Beech Grove Coal Company,	100	110	130				
Bower Hill,	Bower Hill Imperial Coal Company,	132	178			284		177
Bellevue,	Gumbert & Huey,	219	244	170	251½	284	204	204
Battle,	Matte Coal Company,	75	200			110	107	236
Black Diamond,	Thomas Taylor,					247	107	253
Brier Ridge,	St. M. Sullivan & Co.,	190	225				160	164
Buffalo,	St. M. Sullivan & Co.,	200						
	Youghiogheny Coal Company,	190	225	90				
Bessemer and Rising Sun,	McClure & Co.,	217	259	210	283		258	68
Blythe,	Youghiogheny and Ashland Coal Company,	130				53		
Buffalo,	Buffalo Creek Coal Company,	135	188	202		153		
Black Diamond,	John Miller,	264	164			75		
Beech Cliff,	Imperial Coal Company,	180	241	204	280	225		
Boyd,	Edward Fisher,	60	175	120	250	187		
Bryson,	Passmore, Burns & Co.,			87				200
Butler,		40						
Banning,	Morgan, Moore, Bain Co.,				165	218	237	218
Brown's Sons No. 2,	W. H. Brown's Sons,	158	240	153		240	300	270
Beechmount,	Beech Mount Coal Company,	70	312	312	150	300	310	275
Bland,	Frederick Bland,					254	136	
Bloomington No. 3,			165			89	90	201
Buffalo,	Haywood Coal Company,		250			200	148	
Eunola,	O'Neil & Peterson,		222	179	232	168	111	137
Boston No. 1,	W. H. Brown's Sons,		182	148	179	113	113	75
Boston No. 2,						224	91	
Bloomington No. 2,					272	280	221	
Bloomington,	Reese, Mortimer & Co.,		240					
Bear Run,			216	175	106			270
Bear Run,	Blossing Coal Company,					252½	257½	184½
Bessemer,	H. Laveright,		45	162		165		159
Bunola,	O'Neil & Peterson,			173				252
Brock,	Brock Coal Company,					248		270
Brier Hill,	Patterson & Sauters,			270	280			
Roome,	Canonsburg Coal Company,			206	197	198		
Black Diamond,	Thomas Taylor,			212	241	212		
Bloomington,	Bloomington Coal Company,			206	154½	22½		
Brown,	Sweet & Brown,			205	253	200	217	110
Bear Ridge,	Bear Ridge Coal and Coke Company,			252		260	200	260

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Days in operation of Bituminous Collieries—Continued.

Name of Colliery.	Name of Operator.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Cambria.	Clearfield Consolidated Coal Company.			217			186	
Coal Ridge.	Gray & Bell.				217			
Columbia Nos. 1 and 2.	J. L. Mitchell & Co.,	429	507	374				92
Colorado.	White & Jackson.	235	207	173	285	275	266	188
Coaldale No. 3.	Holt & Chipman.	250	287	235	266	211	207	145
Coaldale No. 4.	do.	257		58	216	179		
Coaldale No. 5.	Berwind-White & Co.,	247	286	224	275	230	190	152
Catawact.	I. C. Helms.	244	220		275	180	134	134
Central.	do.	203	248	225	252	149	120	186
Columbia No. 1.	J. L. Mitchell.				232	187	192	123
Coal Centre.	P. J. Forsyth & Co.,							163
Crossland.	Atlas Coke Company.							86
Columbian.	Jos. H. Reilly & Co.,							167
Continental No. 1.	John T. Morton.							130
Colorado No. 3.	Jackman & Blissworth.							157
Cambria Nos. 1, 2 and 3.	United Collieries Company.							230
Crescent No. 2.	Lambirth Mining Company.							229
Church Hill.	McCullum & Co.,				174			223
Catsburg.	Louis Stalb.	226	228	38	277	278	200	248
Cathish Run.	Ladish Iron Coal Company.	140	165	150		60	273	
Caledonia.	T. J. Wood.	138			220		170	250
Coal Hill.	W. M. P. Coal Company.		166	157		205	137	180
Columbia No. 2.	J. W. Morgan.							
Cranberry.	J. L. Mitchell.	235	218		115			
Caledonia.	Sharon Coal Company Limited.	147				200		70
Cascade.	Caledonia Coal Company.	300	310	299	289	299	286	282
Clinton.	Kaul & Hall.	257		235	215	198	187	207
Cumtong.	N. W. Mining and Exchange Company.	194	54	202				
Cumberland.	B. F. Kiestler & Co.,		200	274	240	225	216	122
Cooke.	Cumberland Coal and Mining Company.					208	263	154
Chevington.	H. and B. T. M. R. and Coal Company.			250				
Castle Shannon.	J. W. Cooke.	139	91	75	59	277	280	246
Catawact.	do.							
Central.	P. and C. S. R. R.	230	262	281			203	
Cuba.	Berwind-White C. M. Company.	213	195	144	218			
Cliff.	T. C. Helms.	201	145		145			
Cedar Hill.	J. M. Bisher.	135			200		100	209
Clippert.	Bradford Leach & Co.,	120						
Champion.	B. C. Furlong & Son.	121		258	238			
Co-operative.	Allenport Coal Company.	150	160	157	266	200	150	80
Columbia No. 3.	C. J. Wood.	198	416		253		168	
Calmnet.	Co-operative Coal Company.		125		200	148		171
Carbon.	Michigan Coal Co.		92	276	259	208	252	151
	Galunee Coal Company.		230	246			164	
	Carbon Coal Company.							

Clinton,	H. C. Frick Coal Company,	30	..	..	56	..	257	..	212
Claridge,	Claridge Gas Coal Company,	..	..	..	..	..	..	..	..
Cupalo,	H. C. Frick Coal Company,	22	..	..	..	..	15	..	180
Cymbria,	Cymbria Coal Company,	42	140	..	..	..	..	..	..
Columbus No. 4,	Mitchell Coke and Coal Company,	112	..	..	218	..	..	..	..
Centre,	Centre Coal and Coke Company,	140	..	..	187	..	..	..	..
Catharine,	Blair Bros.,	..	..	..	212	..	135	..	75
Cherry Run,	Cherry Run Coal Company,	..	..	..	197	..	..	..	..
Cherry Run,	C. and F. L. Grassy Run Mine,	..	..	..	191.50	..	..	..	..
Chatham,	John B. Reed Coal Company,	..	..	..	148	..	243	..	..
Crescent,	Lambirth Coal Mining Company,	..	..	..	162	..	222	..	..
Cresson,	Cresson Coal and Coke Company,	..	..	..	269	..	90	..	..
Cannellton,	Morgan Coal Company,	..	..	..	58	..	180	..	..
Dagus Nos. 1, 2 and 3,	N. W. Mining and Exchange Company,	..	..	..	255	..	251	..	..
Dixon Mine,	H. C. Springler & Co.,	200	251	..	250	..	200	..	..
Diamond,	McClure & Co.,	223	32	125	240	..	32	..	85
Dysart No. 1,	Canon Leahy,	200	216	158	150	..	228	..	154
Dysart No. 2,	D. Laughman,	208	213	200	208	..	212	..	..
Delany,	Altoona Coal and Coke Company,	261	290	650	274	..	275	..	235
Dougherty,	Richland Coal Company,	..	..	..	..	..	290	..	..
Darr,	Osborn, Seger & Co.,	..	..	..	..	..	287	..	168
Drane,	D. W. Holt,	208	135	172	..	..	275	..	270
Derby,	F. Barnes & Bro.,	217	213	214	..	..	182	..	..
Decatur No. 1,	Decatur Coal Company,	160	215	235	..	..	242	..	153
Decatur No. 2,	do.	..	..	..	..	..	186	..	87
Duquesne,	J. B. Corey,	130	132	154	..	..	200	..	190
Donnelly Nos. 1, 2 and 3,	McClure & Co.,	220	246	224	..	..	232	..	..
Dagus Mines Nos. 1 to 25,	N. W. Mining and Exchange Company,	200	214	224	..	..	207	..	214
Decker,	J. R. Seiler & Co.,	209	98	98	..	..	257	..	..
DeKalb,	E. P. Jentlich & Co.,	174	68	135	..	..	182	..	139
Dilworth,	W. R. Dilworth & Sons,	95	176	225	..	..	240	..	..
Diamond,	Thos. Mitchell & Sons,	225	264	237	..	..	198	..	206
Dualo,	Dumlo Coal Company,	..	..	..	..	..	260	..	..
Derry,	Derry Coal and Coke Company,	75	..	..	..	..	252	..	283
Diamond,	Deny Coal and Coke Company,	117	..	..	..	..	..	..	..
Dravo,	G. H. Haywood & Co.,	171	175	145	..	..	186	..	203
Derry shaft,	Lake Shore Gas Coal Company,	..	310	300	274	..	301	..	268
Denmark,	Derry Coal and Coke Company,	..	..	230	210	..	280	..	222
Dean,	Cresson and Clearfield Coal and Coke Company,	..	..	92	264	..	260	..	250
Davidson shaft,	H. C. Frick Coal Company,	..	..	..	271	..	188	..	244
Dean No. 4,	..	..	..	..	..	..	243	..	255
Delta,	Delta Coal Mining Company,	..	..	..	..	..	..	..	120
Donnelly,	McClure Coke Company,	..	..	..	..	..	..	..	175
Eclipse,	J. S. Neel,	170	135	..	220	..	230	..	250
Eclipse,	Jno. Carlin & Co.,	..	141	175	..	..	60	..	130
Enterprise,	Hartley & Marshall,	..	..	..	257	..	55	..	224
Ewing,	Swing & Gordon,	..	..	..	..	..	..	..	..
Essen,	Sanford & Co.,	..	..	..	137 1/2	..	..	..	210
Enterprise,	Ritter Westerman,	..	..	..	..	..	..	..	178
Eureka slope,	Edna Ewing,	223	..	..	..	..	..	..	..
Everett,	H. C. Frick Coal Company,	272	256	289	..	..	250	..	..
Euclid,	Everett Coal and Iron Company,	..	..	..	..	..	..	..	..
Enterprise,	Euclid Coal Company,	285	290	216	255	..	270	..	216
Essen,	Hartley & Marshall,	232	225	200	..	..	238	..	140
Ewing and Gordon,	Stanford & Co.,	183	146	128	197	..	216	..	103
Ewing and Gordon,	Ewing & Gordon,	..	..	..	..	..	..	..	..

Days in operation of Bituminous Collieries—Continued.

Name of Colliery.	Name of Operator.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Eagle's Nest,	Green Oak Coal Company,	290	250	120	144	..	..	..
Empire No. 1,	Empire Coal Company,	290	282	245	230	..	..	..
Eureka No. 5,	Berwind, White & Co.,	255	191	..	..	..	..	..
Excelsior No. 1,	Fisher, Miller & Co.,	..	..	..	..	..	181	200
Eureka No. 5,	Berwind White & Co.,	275	211	125	..	..	..	..
Excelsior No. 3,	do,	245	..	..	..	..	..	..
Elizabeth,	Elizabeth Coal Company,	160	..	..	..	..	..	..
Excelsior No. 2,	Stoner & Co.,	311	300	311	260	245	..	..
Eureka,	M. F. Overholt,	227	156	176	263	176	224	144
Emma,	John Etter,	..	..	..	..	..	..	..
Etter,	do,	..	..	..	..	..	..	..
Enterprise,	..	..	..	..	276	..	..	101
Eldorado,	Eldorado Coal Company,	120	123	111	235	240	180	200
Eagle,	J. Gwinn & Son,	230	230	..	..	..	250	..
Eureka No. 2,	Berwind-White C. M. Company,	251	206	258	351	264	231	120
Enterprise,	J. V. H. Cook,	..	..	..	280	..	..	..
Elmira,	Maker & Baumgardner,	..	..	..	180	..	262	230
Elia,	Elia Coal Company,	..	..	..	..	60	..	..
Edna,	C. and C. Coal Company,	..	..	..	..	174	..	..
Export,	..	..	..	..	..	..	35	297
Elbow,	Noble Coal Company,	..	..	..	..	..	204	..
Elmore,	W. T. Risher,	..	..	..	..	..	280	290
Elmore,	East End Coal Company,	..	..	..	..	..	15	180
East End,	do,	..	..	..	..	..	143	215
Elmore,	..	..	..	..	260	232	253	238
Eureka No. 3,	Rochester and Pittsburgh Coal and Iron Co.,	119	191	290	..	..	159	152
Eureka No. 8,	Berwind-White Coal Mining Company,	109	251	224	235	246†	192	..
Eureka No. 9,	do,	..	..	..	..	52	..	..
Eureka No. 6,	do,	257	278	278	..	276†	..	198
Eureka No. 7,	do,	..	..	..	..	68†	250	187
Eureka No. 10,	do,	..	..	..	100	..	..	..
Eureka No. 11,	do,	..	..	..	..	64	..	..
Elizabeth No. 2,	do,	..	..	..	..	..	..	..
Elizabeth No. 11,	..	260	219	220	240	..	172	179
Enterprise,	Kittanning Coal Company,	61	136	..	..	..	..	..
Enterprise,	Berwind-White Coal Mining Company,	221	139	285	..	..	260	300
Enterprise,	McClure & Co.,	..	..	..	..	..	106	216
Eureka No. 13,	Berwind-White Coal Mining Company,	223	..	..	..	..	..	..
Eureka No. 14,	Beckley Coke Company, Limited,	..	..	..	..	..	221	207
Elizabeth No. 8,	Berwind-White Coal Mining Company,	290	300	300	304	..	..	..
Excelsior No. 4,	El C. Fisher,	115	215	205	240	268†	165	220
Excelsior of Wampum,	Wampum Run Coal Company,	..	..	100	240	200	142	230
Eureka No. 16,	Berwind-White Coal Mining Company,	..	..	..	..	..	..	..
Enterprise,	J. V. H. Cook & Son,	..	..	70	175	..	162	..
Etcheberger,	Etcheberger & Sons,	..	..	99	..	..	..	..
Electric,	T. C. Helms & Co.,	..	..	86	2014	256	85	90

Days in operation of Bituminous Collieries—Continued.

Name of Colliery.	Name of Operator.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Gramplan, . . .	R. C. Fishburn & Co.,	..	..	..	..	..	..	183
Green Springs, . .	Thames and Co.,	..	..	..	..	..	90	..
Grant, . . .	Grant Coal Company,	..	..	..	203	..	..	..
Glendale, . . .	Gregg Bros.,	..	..	..	..	..	..	..
Glass House, . . .	Wm. Baines,	..	..	..	..	..	..	..
Gomersall, . . .	Mahoning Valley Iron Company,	205	228	240	260	245	210	200
Glen, . . .	J. R. Smith,	304	312	317	313	313	313	265
Gaines Nos. 1 and 2,	Gaines Coal and Coke Company,	200	128	..	..	..	..	284
Gautier, . . .	Cambria Iron Company,	..	..	..	..	..	..	..
Griffiths, . . .	Fen & Coover,	..	..	..	62	..	50	..
Glenmore, . . .	Glenmore Coal Co.,	260	219	186	280	255	239	188
Gallitzin shaft,	McCoy & Taylor,	240	391	462	204½	223	246	278
Great Bend, . . .	Great Bend Coal Company,	..	..	..	..	189	..	..
Great Bend No. 3, .	do.	509	310	279	300	300	300	225
Glen White, . . .	Glen White Coal Company,	..	..	..	275	214	240	..
Green Springs, . .	Thos. Fawcett,	..	..	..	..	132	263	195
Glen, . . .	Ghem Coal Company,	..	..	..	..	..	..	..
Glendale, . . .	Gregg Bros.,	180	..	..	..	..	..	..
Glass House, . . .	Glass House Coal Company,	310	..	..	..	..	..	..
Grant, . . .	Spencer & Co.,	227	185	141	283	300	292	292
Gratiot, . . .	Vann Coal Company,	541	375	471	180	218	182	204
Glenwood, . . .	Wm. Morris & Co.,	..	..	220	291	219	250	216
Grass Flat No. 9, .	Clearfield Bituminous Coal Company,	..	186	280	..	..	246	..
Gazam No. 1, . . .	do.	229	159	226	268	270½	246	224
Gazam No. 4, . . .	do.	..	..	..	..	245½	255	..
Greensburg No. 1, .	Greensburg Coal Company,	235	300	254	267	254	163	190
Greensburg No. 2, .	do.	..	..	..	..	..	172	187
Graver, . . .	do.	..	..	..	..	..	..	..
Globe, . . .	New York and Cleveland Coal Company,	143	180	192	238	203	..	..
Gilmore, . . .	Globe Coal Company,	150	..	..	..	..	..	..
Gosford, . . .	Almyer & Maltzberger,	235	190	90	150	243½	129	..
Grace, . . .	Gosford Coal and Mining Company,	225	275	296	294	295	275	230
Glenwood, . . .	W. J. Rathey,	..	..	..	256	240	181	..
Glen, . . .	W. Morris & Co.,	..	..	..	..	..	..	..
Glen Fisher, . . .	J. Z. W. Cook,	200	..	..	..	100	..	240
Glenshaw, . . .	Elk Coal and Coke Company,	..	..	..	..	..	..	..
Grass Flat No. 10, .	Glenshaw Coal Company,	..	275	300	..	..	..	206
Grass Flat No. II, .	Clearfield Bituminous Coal Company,	230	..	..	..	301	200	..
Glen Fisher, . . .	do.	..	249	..	..	..	..	..
Goss Run, . . .	Standard Coal and Coke Company,	..	..	..	..	..	..	..
Grady, . . .	..	..	..	..	..	..	..	..
Grass Run, . . .	Pittsburgh and Chicago Gas Coal Company,	240	119	136	268	166	217	180½
Grassy Run, . . .	Leate Taylor,	130	146	250	260	225	306	175
Gwin, . . .	Grass Run Coal Company,	173	130	147.50	142	197	183	184
Gurnee Nos. 1, 2 and 3,	Guth & Son,	..	..	..	..	220	..	50
Gallitzin slope, . .	Gaines Coal Company,	..	..	..	197	225	211½	204
	Mitchell & Laver,	290	203	212	229	220	213	201

Glen Ritchey,	Bloomington Coal Company,	242	167	200	200	100	243
Guion,	do.	120				183	
Grindstone shaft,	Redstone Oil, Coke and Coal Company,						
Germania,	Turnbull & Foster,		167				
Gassman or C. & I. No. 1,	Cumberland and Summit Coal Company,		140		152		
Gassman or C. & I. No. 2,	do.		100				
Graceton,	McCreary Coal and Coke Company,						205
Grindstone,	Redstone Oil Coal and Coke Company,						85
Grampian No. 2,	Thos. J. Lee & Co., Limited						173
Gudy,	R. C. Fishburn & Co.,						120
Glenwood Nos. 1, 2 and 3,	Youghiogheny River C. Co.,						240
Gricks,	Glenwood Coal Company,				80		171
Hicks,	Hilldale Coal Co.,	124	189	246			
Hiddle,	Filldale Coal Company,	295	76.50	2164			130
Horne & Roberts,	Horne & Roberts,			190		73	
Hors Street Run,	Hays' Estate				95		
Hastings shaft,	W. J. Morgan,					237	119
Hickory slope,	C. B. Harding,		145				
Hulmes,	Hazzard, Wood & Co.,	156					
Hill Farm,	James Clayton,		275	141		202	160
Hoblitzell,	Dunbar Furnace Company,	252					
Hagen & Whyel,	Baltimore and Cumberland Coal Company,						
Henry Clay,	Hagan & Whyel,						
Haw's shaft,	H. C. Fricke Coal Company,	193	289	265	198	263	263
Harvey O'Neil,	A. J. Haws,	220	201	246	201	306	240
Horne & Roberts No. 3,	O'Neil & Co.,	165		1214		148	178
Horne & Roberts Run,	Horne & Roberts,	120					
Hastings slope,	Hays' Estate,	130					
Hawth Run,	Penn Coal Company,	180	120	230	134	166	230
Harrison,	Jones & Mull,	203					
Hampson,	D. Laug & Co.,						
Hempfield,	Hampson Coal Company,	302	245	86	210	200	163
Hedon Nos. 1 and 2,	Hempfield Coal Company,	313	252	252	254	216	246
Hazlet Nos. 1 and 2,	Hedon Coal Company, Limited,	2594	265	268		274	177
Hall,	McClure & Co.,	231	272	234	193		222
Hardscrabble,	do.			230	152	296	147
Hamilton,	John W. Hall & Son,	247	263	200			135
Hocking,	Brady's Bend Mining Company,						
Home,	Powers & Brown,		221		263	243	245
Horse Shoe,	Hocking Coal Company,	104					
Hays' Street Nos. 2 and 3,	Stauffer & Wiley,	238	274	278			
Hanson,	Altoona Coal Company,	295	239	270	147	88	
Hamilton,	H. C. Bergman, Trustee,		105				
Huntington,	Coeran & Hamilton,	120	240				
Hudson,	Ed. Gould,	70	163	210	170	200	72
Hastings,	R. B. Wigton & Son,	120					
Harriet Lane,	Chess Creek Coal and Coke Company,						
Hites,	Lyeth & Langdon Coal Company,	92	214	255	233		
Hendry,	Hill Coal Company,	124					
Helvelin,	McFeridge Bros., Coal Company,		25	103	261	265	221
Honer & Roberts No. 4,	Coal Run Coal Company,			110			
Hackett's,	John Watton,				252	196	146
Henrietta,	Ashley,				265	3134	301
	Horne & Roberts,					120	
	Hackett Coal and Coke Company,					200	
	Henrietta Coal Mining Company,					60	220

Days in operation of Bituminous Collieries—Continued.

Name of Colliery.	Name of Operator.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Hicks.	DeLong & Gould.						180	105
Henderson.							164	198
Hallville.	Kaull & Hall.					50	250	285
Hazel Dell.	Henry Bros.			296	277		284	181
Henry Bros.	W. P. Hurst & Co.							98
Hickman.	Henrietta Coal Mining Company.							250
Honestead.	H. K. Wick & Co.							188
Hughes.	Reese Bros.							240
Harvey slope.	Richard Hughes.							275
Holts.	Lambirth Mining Company.							178
Ingleside.	Hill & Buck.							203
Ivli.	Ingleside Coal Company.				130	257	210	190
Idlewood.	James Jones.	240	250	225			220	195
Isabella.	Phenix Gas and Coal Company.	300	105	300	300	300	250	140
Irvona No. 1.	Isabella Furnace Company.	306	252	204	177	240	225	180
Idlewood.	Irvona Coal Company.	35						140
Imperial.	Phenix Coal Company.							
International.	Imperial Coal Company.		95					
Irvona No. 2.	International Coal and Mining Company.		105		175	180	250	
International.	Stewart & Radisson.	34	70	75	86	240	238	
Indiana branch.	Irvona Coal Company.	110						
Instanter.	International Coal and Mining Company.			90				
Jones.	Buffalo Coal Company.				276	295	287	276
Juniata.	Thos. Jones.							
Jones & Laughlin.	Juniata Coke Company.					256	269	254
J. C. Stineuan.	Jones & Laughlin.							
Jumbo.	J. C. Martin.				251	280	257	264
Jackson.	T. B. Robbins.	100			87	140	292	210
Jones.	Jackson Coal Company.	42	57					192
Jamison.	George Jones & Co.						90	200
James O' Nell.	James O' Nell.							
Jumbo.	Jumbo Coal and Coke Company.	240	350		254			
Jackson.	Jackson Mines Company.	235	300	130	240	257	150	
Jefferson.	Foster, Clark & Wood.	132	146	80	150 ¹	156	70	82 ¹
Junction.	Joseph Laughrey & Co.			238	230			
Jumbo.	Jumbo Coal and Coke Company.			202				
Jefferson.	Adams & Co.							
Knob.	Knob Coal Company.	136	100	176	238	125	120	269
Keystone.	Keystone Coal Company.	228	250	240	220	220	244	100
Keighly.	Bliss & Wells.	170	175	249	264	196	76	220
Keighly.	Fort Campbell Mining Company.						251	117
Keighly.	Berwind White & Co.							
Keystone Nos. 1 and 2.	W. H. Brown & Sons.	215	180		275	280	250	
Keystone.	Keystone Coal and Coke Company.	184						
		115	230	210			234	

Keister	Union Coal and Coke Company	240	265	252	240	257	184	187
Kittanning	Kittanning Iron Company, Limited,	280	38		209	180		110
Kittanning								
Kelzintley	H. C. Cord							
Kyer	Kyer Coal and Coke Company,	261	176	175	258	215	179	158
Karns	W. C. Mobley & Co.	280	174	247	268	250		
	Pittsburgh and Fairport Coal and Coke Co.,	35	119		268	253		
Keystone Nos. 1 and 2,	Keystone Coal Company,	160						
Kentuck	Fryburger & Butterworth,		3	140	1211	230	132	59
Kettle Creek	Kettle Creek Coal Company,			221	255	206	208	164
Kelly's mine,	Kelly Bros.,			256				
Knox Run,	C. Bitt. Coal Company,					24		
Kearney	Joseph E. Thropp,			33	283	130	226	167
Kecks	Woodland Coal Company,				89	90	140	170
Krebs	Lusty Mining and Manufacturing Company,							240
Knoxville,								275
Kelly's	Kelly Bros.,							200
Lower Walton,	Joseph Walton & Co.,	117	150	80		265	190	291
London,	Fall Creek Coal Company,				232	201		
Loredale,	John A. Wood & Sons,			50	160	162	80	220
Legler's,	Henry Fioersheim,				64		64	140
Laurel Hill,	W. P. Reid,							
Long Run,	Northwestern Coal and Iron Company,							
Leechburg Nos. 2 and 3,	Leechburg Coal Company,				268	280	240	205
Leechburg No. 4,	do.						314	280
Lackawannock,	Pierce Coal Company, Limited,	165	185	115	190	151	103	116
Long Valley,	Long Valley Coal Company	220	193	197	283	228	206	168
Leisenberg No. 1,	Connellsville Coal and Iron Company,	1584	275	253	157	193	252	185
Leisenberg No. 2,	do.	2324	290	273	218	120	230	220
Leisenberg No. 3,	do.						256	146
Lemont,	Robert Hogsett,	275	275	304	276	207	277	183
Laraboe Coal Works,	Laraboe Coal Company,	246	285	284	306	284	303	223
Loredale,	John A. Wood & Sons,	175	154					
Laurel Hill,	W. F. Reid,	300	310	400	275	275	230	230
Lake Shore,	Lake Shore Gas-Coal Company,							
Loraine,	Reardt Bros., & Williams,	293	248	236	210	119	192	216
Leland	Thomas L. Brock & Co.,						154	220
Lean Ridge,	H. Liveright & Co.,	138						
Laurel Run Nos. 1 and 2,	Nuttall, Bacon & Co.,	281	250	257	261	257	197	218
Lippincott,	Hosstetter Coke Company,				143	198	143	178
Lancashire Nos. 1 and 2,	T. Barnes & Bros	2544	258	261	144	2944	185	280
Larimer	Westmoreland Coal Company,							
Larimer Coke Works,	Carnegie Bros & Co., Limited,	300						
Little Pittsburg,	R. E. Schrenz & Co.,	240	200			153	182	168
Little Redstone,	James Rutherford,	150				65	150	74
Little Alps,	Leechburg Coal and Coke Company,	236	275	272				
Leechburg No. 2,	do.	201	278	273	267	209	258	93
Leechburg No. 3,	Chicago and Connellsville Coke Company,							
Leith,	Robert Hogsett,	204			59	283	273	220
Lemont No. 2,	Loyalhanna Coal and Coke Company,				250	235	235	290
Loyalhanna shaft,	Grege Bros.,	215	245	148	140	198	215	196
Leedsdale,	Nuttall, Bacon & Co.,	219			220	256		
Laurel Run No. 1,	do.	190	220	200			275	
Laurel Run No. 2,	do.				218	519	207	
Lancashire No. 1,	do.	238	209	184	235	185	211	
Lancashire No. 2,	T. Barnes & Bro.,	193	150	242				

Days in operation of Bituminous Collieries—Continued.

Name of Colliery.	Name of Operator.	1887.	1888.	1890.	1891.	1892.	1893.
Lancashire No. 3,	T. Barns & Bro.,				150		80
Luger's slope,	A. B. & G. W. Luger,						46
Lenon,	Blair Iron & Coal Company,	308	285	300	201		130
Lockport,	Lockport Coal and Coke Company,	20		281	281	58	197
Leechburg No. 4,	Leechburg Coal and Coke Company,		309	300	311		
Leisenring No. 3,	Connellsville Coke and Iron Company,	98	239	177	177		146
Large,	R. B. Large,					197	176
Lilly,	Lilly Coal Company,		70		226	202	
Leatherwood,	Leatherwood Coal Company,		100				
Lucas Hill,	L. V. Coal Company,			180	117	126	
Larimer,	Larimer Coke Works,		175		283		
Lender slope,	Leander & Co.,			200	200		
Langhead,	Langhead,			166	156	308	266
Lewis,	Lewis & Co.,						
Linn,	Uanna Bros.,		250		301	185	175
Lucas No. 1,	do.						
Lucas No. 4,	Arneston Coal Company,						135
Lancashire No. 5,	Evans & Co.,						100
Lorne,	Fred. C. Todd & Co.,						50
Milesville,	Robert Jenkins,		171	248	203		
Midway,	George Crawford,		200	258	230	200	
J. C. Martin No. 1,	J. C. Martin,						
McConnell,	Joseph McConnell,	192	142				
Mansfield Nos. 1 and 3,	Mansfield Coal and Coke Company,			240	202	331	190
Mansfield No. 2,	do.	225	240	250	197	205	168
Montour's,	Imperial Coal Company,						
Mansfield,	J. F. Mansfield,				250	300	250
Mineral Ridge Nos. 1 and 2,	Mineral Ridge Coal Company,	275	192	192	224	2124	240
Morris Run Nos. 1, 2 and 3,	Morris Run Coal Mining Company,		278	242	224		
Morgan,	H. C. Frick Coke Company,		301	288	216	311	262
Morrell,	Camoria Iron Company,	290	311	280	200	189	183
Millwood,	Millwood Coal Company,	241	143	250	200	253	182
Monastery,	H. C. Frick & Co.,	211	107	285	191	286	227
Mosman,	M. Saxman & Co.,	222	262	301	304		
Munson's,	Munson Coal Company,			130			
Mundule,	W. C. Munson & Co.,		280				
Monroe slope,	Galitz Coal Company,						
Monroe,	F. W. Menzer,						
Mentzer,	R. H. Foxell & Sons,						
Mersville,	Roda Maher,	240	100	279	295	293	256
Mithersville,	Robert Jenkins,	90	158			211	
Mithersville,	do.		201				
Mansfield No. 2,	Mansfield Coal and Coke Company,	192	200				
Mansfield No. 3,	do.						
Madison,	Madison Gas Coal Company,			87			
McConnell,	Joseph McConnell,	180		252		293	276
Morrisdale Nos. 8, 10, 11, 12, 13, 14 and 15,	R. B. Wigton & Sons,	219		232		175	
Moshannon,	Moshannon Coal Company,	157	241	258	147		

Days in operation of Bituminous Collieries—Continued.

Name of Colliery.	Name of Operator.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
New Virginia,	Virginia Coal Company,			155				
Nelly,	Brown & Cochran,	231	262	282	275	250	250	260
National,	National Coal Company,	209	286	183	271	262	233	
North Side,	Westmoreland Coal Company,							
Nos. 2 and 3,	do.	280	271	283	295	256	312	157
No. 4,	do.	210	244	280	299	311	311	133
National No. 1,	Philadelphia Coal and Coke Company,	240	271	242	297	217	253	107
New Carlisle,	do.							120
National No. 2,	Pittsburgh C. and M. Company,	80	242					
Nashannock,	Perkins & Co.,	154	123		190		66	
Natrona,	Pennsylvania Salt Manufacturing Company,	202	300	293	306	306	300	240
Nickel Plate,	J. D. Sauter,	280	182		265	236		
No. 3 drift and shaft,	S. W. Coal and Coke Company,				285			
Nixon,	Whitmer Coal and Coke Company,	170	183	255	125	175	203	158
New Hampshire,	Chartiers Valley Coal Company,	200	200	136	186	171		170
Nottingham,	Whitehead & Co.,		95					120
Nickel Plate,	Henry Floresheim,				273	254		239
New Lurdee,	J. D. Sauters,			207		237		197
North Western,	R. B. Large,							196
Old Eagle,	Magee & Lingle,							210
Oak Ridge,	Pittsburgh and Belle Vernon Coal Company,							152
Oak Ridge Nos. 1 and 2,	W. H. Brown & Sons,				241	171		235
Ormsby shaft,	Keggs Coal Company,	207			191	258	229	193
Ocean No. 1,	Oak Ridge Mining Company,	212	141	209	136	255		103
Oliphant,	L. M. Ormsby & Co.,	184	138	137				63
Ocean No. 2,	Ormsby Coal Company, Limited,	280	315	245	260	202	202	85
Old Eagle,	Wm. Sweet,				62	244	243	77
Oliphant,	do.					160	160	209
Onelda,	W. H. Brown & Sons,	163	155		256	185	300	125
Ormsby,	Fricks Coal Company,						278	70
Oak Ridge,	Oliver Coke and Furnace Company,				235			
Ocean No. 2,	Birmingham Coal Company,	250	200	300	200	279		
Ocean No. 3,	Oak Ridge Coal Company,	248	223	230	261	256	170	234
Ocean No. 4,	Youghiogheny Coal Company,		230	250	241	300	237	
Ocean No. 1,	do.							
Oak Hill No. 4,	do.							
O. I. C.,	Yough River Coal Company,	155	37	63	174	160	87	209
Oscoda,	New York and Cleveland Gas Coal Company,	230	258	227	125	207	207	
Oakland,	do.	168	256	223	231	205	205	241
Old Moshannon,	Oscoda Coal Company,		216	100	200	190	200	144
	C. B. Ordele,	240			202	202	180	160
	Samuel Hafferty,	305		290	289	289	306	306
		250		100	94	180	122	150

Ocean No. 1, ...	247	233	240	206	112
Ocean No. 2, ...	214	226	261	200	..
Ocean No. 3, ...	138	207	174	156	..
Ohio and Pennsylvania, ...	300	200	..	..	..
O' Shanter Coal Company, ...	182	180	232	225	190
Oak Ridge Mining Company, ...	189	225	231	265	..
Oak Ridge Hill, ...	173	173	273	45	..
Ocean No. 5, ...	160	160	260	270	249
Oak Ridge, ...	140	140	..	..	..
Ophir, ...	153	..	..	..	153
Orient, ...	137	..	..	..	..
O' Shanter, ...	270	..	..	..	270
Pine Run Nos. 1 and 2, ...	117	..	..	..	117
Patton, ...	..	..	..	..	..
Penny, ...	162	..	..	156	162
Palmrose, ...	..	..	..	..	..
Powers, ...	300	300	255	191	204
Pioneer, ...	..	..	..	..	..
Pardoe, ...	..	..	..	..	..
Pleasant Hill, ...	262	280	245	132½	222
Pearson, ...	188	268	255	189	167
Pearson, ...	170	..	..	..	..
Pittsburgh and Kiskiminetas, ...	291	288	253	100	120½
Pittsburgh and Kiskiminetas Coal Company, ...	..	..	..	..	..
Lambert, Scott & Co., ...	241	222	..	242	240
Stevenson & Mitchell, ...	223	265	..	..	..
Reclure & Co., ...	222	188	275	280	178
Perry Mining Company, ...	135	170	230	282	136
Berwind-White & Co., ...	..	..	192	184	..
Berwind-White Coal Company, ...	..	..	212	..	111
John O' Neil & Co., ...	..	..	..	..	..
Peter's Coal Company, ...	..	..	..	..	..
Pioneer, ...	..	..	..	..	..
Penn Manor, ...	..	..	244	104	215
Penny, ...	110	..	139	110	..
Phenix, ...	..	..	..	301	320
Penn, ...	..	..	153	185	200
Reakirt Bros., ...	267	287	270½	209½	250
New York and Cleveland Gas Coal Company, ...	136	263½	288	288	211½
Port Royal, ...	200	278½	234	288	..
Penn Gas Coal Run, ...	250	215	217	240½	230
Lambert, Scott & Co., ...	..	..	212	..	..
Penn Gas Coal Company, ...	250½	272	185	246	262
do., ...	256	225	244½	231½	210
Port Royal Coal and Coke Company, ...	230	252½	171	233½	204½
Penn Gas No. 2, ...	200	241	83	203	171½
Penn Gas No. 4, ...	222	217½	256½	246	..
Port Royal, ...	186	238	253	153	88
Penn, ...	..	..	271	316	92
Pennville, ...	..	..	..	..	..
Plumer, ...	..	274	..	..	158
Plummer, ...	..	..	..	140	..
Prospect, ...	244	168	245	..	..
Pine Run Nos. 1 and 2, ...	240	248	186	..	..
Pacific, ...	46	..	..	..	..
Pioneer, ...	231	100	165	215	264
Standard Coal Company, ...	..	..	142	243	..
Penny Coal Company, ...	140	80	80	214	..
Penny, ...	261	269	254	205	133
Pacific No. 1, ...	..	..	..	..	..
Pacific No. 2, ...	253	311	295	..	..
Berwind-White Coal Mining Company, ...	..	..	..	..	..
do., ...	..	..	..	..	..
Berwind-White Coal Mining Company, ...	..	..	..	..	..
do., ...	..	..	..	..	..
Ohio and Pennsylvania Coal Company, ...	..	..	..	..	..
O' Shanter Coal Company, ...	..	..	..	..	..
Oak Ridge Mining Company, ...	..	..	..	..	..
Y. J. Shuttle, ...	..	..	..	..	..
Tonghogeny River Coal Company, ...	..	..	..	..	..
James Campbell, ...	..	..	..	..	..
Hoy & Ashman, ...	..	..	..	..	..
Blair Bros., ...	..	..	..	..	..
Beach Creek Company, ...	..	..	..	..	..
John O' Niel, ...	..	..	..	..	..
F. G. Patton, ...	..	..	..	..	..
David H. Lynch, ...	..	..	..	..	..
T. B. Robbins, ...	165	300	255	191	204
Haselton, Jacobs & Co., ...	..	..	..	..	..
Mercer Mining and Manufacturing Company, ...	..	..	..	..	..
C. B. Coal and Coke Company, ...	..	..	..	..	..
Newcastle Railroad and Mining Company, ...	..	..	..	..	..
Pittsburgh and Kiskiminetas Coal Company, ...	..	..	..	..	..
Lambert, Scott & Co., ...	241	222	..	242	240
Stevenson & Mitchell, ...	223	265	..	..	..
Reclure & Co., ...	222	188	275	280	178
Perry Mining Company, ...	135	170	230	282	136
Berwind-White & Co., ...	..	..	192	184	..
Berwind-White Coal Company, ...	..	..	212	..	111
John O' Neil & Co., ...	..	..	..	..	..
Peter's Coal Company, ...	..	..	..	..	..
Pioneer, ...	..	..	..	..	..
Penn Manor, ...	..	..	244	104	215
Penny, ...	110	..	139	110	..
Phenix, ...	..	..	..	301	320
Penn, ...	..	..	153	185	200
Reakirt Bros., ...	267	287	270½	209½	250
New York and Cleveland Gas Coal Company, ...	136	263½	288	288	211½
Port Royal, ...	200	278½	234	288	..
Penn Gas Coal Run, ...	250	215	217	240½	230
Lambert, Scott & Co., ...	..	..	212	..	..
Penn Gas Coal Company, ...	250½	272	185	246	262
do., ...	256	225	244½	231½	210
Port Royal Coal and Coke Company, ...	230	252½	171	233½	204½
Penn Gas No. 2, ...	200	241	83	203	171½
Penn Gas No. 4, ...	222	217½	256½	246	..
Port Royal, ...	186	238	253	153	88
Penn, ...	..	..	271	316	92
Pennville, ...	..	..	..	..	..
Plumer, ...	..	274	..	..	158
Plummer, ...	..	..	..	140	..
Prospect, ...	244	168	245	..	..
Pine Run Nos. 1 and 2, ...	240	248	186	..	..
Pacific, ...	46	..	..	..	..
Pioneer, ...	231	100	165	215	264
Standard Coal Company, ...	..	..	142	243	..
Penny Coal Company, ...	140	80	80	214	..
Penny, ...	261	269	254	205	133
Pacific No. 1, ...	..	..	..	..	..
Pacific No. 2, ...	253	311	295	..	..

Days in operation of Bituminous Collieries—Continued.

Name of Colliery.	Name of Operator.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Pardee, ...	Duncan, Lingle & Co., ...	250	332	425	..	..	..	..
Philadelphia, ...	W. J. Rayney, ...	50	295	290	290	300	300	260
Powers Nos. 2 and 3, ...	Chartiers Block Coal Company, ...	200	270	232.50	243	186	206	277
Pine Run, ...	..	..	140	..	..	..	..	..
Pleasant Valley, ...	Reil, Lewis and Yates Coal Mining Company, ...	..	..	270	225	213	60	177
Pardee No. 1, ...	G. J. Magee, ...	..	..	..	264	156	262	183
Pine Hill, ...	Pine Hill and Cumberland Coal Company, ...	..	..	..	..	..	..	39
Pardee No. 2, ...	G. J. Magee, ...	..	..	200	269	234	247	183
Pine Creek, ...	Robbins Coal and Coke Company, ...	..	..	300	295	232	214	130
Pardee No. 3, ...	G. J. Magee, ...	..	..	..	257	237	..	..
Pluton, ...	G. M. H. Good, ...	..	..	59	..	..	..	..
Pian, ...	E. W. Mentzer, ...	..	..	..	..	..	..	157
Pierce, ...	George Pierce & Bros., ...	..	..	..	..	..	..	180
Patton No. 1, ...	R. B. Wigton & Sons, ...	..	..	..	..	..	..	211
Pan Handle, ...	Pan Handle Coal Company, ...	..	..	..	..	..	..	82
Pine Creek No. 2, ...	Robbins Coal and Coke Company, ...	..	..	..	..	..	..	138
Pittsburgh Fuel No. 2, ...	Pittsburgh Fuel Company, ...	..	..	..	..	..	..	130
Perks, No. 1, ...	Queen Coal Company, ...	..	..	..	..	..	200	250
Queen No. 2, ...	..	..	..	..	..	..	150	110
Rankin, ...	Henry Reibka, ...	..	..	..	125	..	..	..
Robbins, ...	Wm. Robbins & Co., ...	..	..	65.50	114	178	..	132
Rock Run, ...	W. J. Snodgrass & Co., ...	..	..	..	235	..	..	..
Risher, ...	J. D. Risher, ...	..	..	..	..	..	..	..
Rochester Mine, ...	Bell Lewis & Yates, ...	212	232	280	240	199	280	210
Rist, ...	H. C. Frick Coke Company, ...	273	278	289	265	187	265	261
Rock Point, ...	Rock Point Coal Company, ...	..	..	..	..	131	311	280
Rolling Mill, ...	Cambria Iron Company, ...	..	..	..	..	298	208	271
Ridge View, ...	D. C. George & Co., ...	..	..	..	..	..	..	..
Risher, ...	J. D. Risher, ...	200	65	..	..	..	..	..
Robbins, ...	Wm. Robbins & Co., ...	146	1154	..	126	..	195	..
Rock Run, ...	Wm. Snodgrass & Co., ...	130	140	..	..	115	114	..
Rankin, ...	John Perry & Co., ...	..	50	..	..	..	..	..
Reading, ...	H. Liverigne & Co., ...	238	268	359	160	51	216	..
Rehock, ...	R. B. Wigton & Sons, ...	247	236	195	195	161	189	192
Republic, ...	Republic Coal Company, ...	210	100	112	86	..	..	..
Rostraver, ...	Wm. Schnader, ...	..	..	..	..	..	100	254
River View, ...	River View C. and M. Company, ...	154	254	270	266	208	100	190
Red Bank, ...	Alex. Reynolds & Sons, ...	240	190	141	214	..	..	..
Richmond, ...	Morris & Butler, ...	..	..	..	225	204	180	165
Richmond No. 1, ...	Morris & Stevens, ...	..	..	..	169	205	108	..
Richy Edge, ...	Sleamun, ...	..	..	..	..	..	..	..
Ridgway Bishop, ...	Ridgway Bishop Coal Company, ...	..	..	..	..	..	84	240
Redstone, ...	Redstone Coke Company, Limited, ...	245	280	288	271	192	290	272
Radnow, ...	Radnow Coal and Coke Company, ...	310	280	240	225	275	250	220

Rolling Mill.	Wm. H. Everson & Co.	264	246	258	297	254	268	233
Robertsdale.	Rockhill Iron and Coal Company,	70						
Rinehart.	F. H. Rinehart,	125						
Rubus.	Cresson and Clearfield Coal and Coke Co.,							
Red Run.	Red Run Coal Company.		240	285	303	250	252	279
Rubino.	Cresson and Clearfield Coal and Coke Co.,				216	158		
Redstone shaft.	Redstone Oil Company,		40	204	216	278		
Ramey.	Thomas Barnes,			262	215			
Retort A No. 1.							200	263
Roy.	McClure Coke Co.							230
Rising Sun.	Lukens, Haupt & Co.,							
Sand No. 1.	Venture Coal Company,			40				65
Stuckdale.	Wm. Stone's heirs,			209	190			
Stones.	Francis Mankiedick.				250			268
Star.	Frank Armstrong.				300			212
Summer Hill.	Shupe & Co.,							
Slampe & Co.,	Smith & Co.,				270	200	300	252
Smith.								
State Line.	State Line Coal Company,	243						
Stoneboro Nos. 2 and 3.	Mercer Coal and Iron Company,		200	250	240	208		186
Spears.	Pine Grove Coal Company,	209	241	264	285	250	175	240
Star.	Northwestern Coal and Iron Company.						273	
Sligo Branch.	Cralz & S. Coon,							
St. Mary's Nos. 1, 2 and 3.	St. Mary's Coal Company,				303	308	300	286
St. Mary's No. 3.	do.							
Summit Nos. 1 and 2.	H. C. Frick Coke Company,	274	282			223	300	226
Sterling Nos. 1, 2, 3 and Jintown.	Kelly Bros.,	237	280	584	273	278	233	228
Snow Shoe.	Stearns Coal Company,	265	260	194	241	270	245	157
Strickler.	Smith & Co.	300	300		286	270	265	245
Strickler.	J. A. Strickler & Co.,				68	290	235	
St. Clair.	M. Preston & Co.,						100	95
Spartan.	Samuel Haggerty,	200	140	200	254	220	220	200
Smittle.	Smittle & Co.,							
Stineman.	J. C. Stineman,	249	240	216				
South Fork.	George B. Stineman,	301	290					
Sonnan No. 1.	W. H. Piper & Co.,	125	169	161	194	268	209	
Sonnan No. 2.	do.	250	240	288	230	240	200	170
Standard.	do.	250	250	207	230	267	198	198
Summit.	Standard Coal Company,	240	250	260	250	147	202	221
Stones.	Summit Coal Company,					313	236	300
Stones.	Wm. Stone & Co.,	170	56			148		
Summer Hill.	Frank Armstrong.	237	49	245		215	228	
Smythe.	Smythe, Powers & Co.,							
Star.	Francis Mankiedick,	220	230					
Starling Nos. 1 and 2.	R. H. Powell & Co.,	476	558	370	280	190	185	135
Starling colliery No. 2.	Berwind-White & Co.,				155	219	251	158
Sugar Camp Nos. 1, 2 and 3.	Lykens Valley Coal Company,						200	147
Summerville No. 5.	Summerville and Buchanan,							
Summerville.	Summerville No. 5.							
Strling No. 4.	Stirling Gas Company,	274	130		55	208	105	
Strling No. 10.	Stirling Gas Company, Limited,	172		190	252	216	202	210
Sandy Lick.	Bell, Lewis & Yates,				169	142	165	166
South Side.	Westmoreland Coal Company,				290	270	245	19
Smithson Nos. 1 and 2.	Waverly Coal and Coke Company,	254	224	200.50	190	130	100	100
Standard Nos. 1 and 2.	H. C. Frick Coal and Coke Company.	250	240	237	218	269	333	286
Spring Hill.	Alex. Dempster,	252	280	275	248	193	258	264
		270	260	240	313	301	306	

Sugar Camp No. 3,	do.	63	233	215	298
Safetie, Sr.,	John Snider, Sr.,	212	117	215	298
Safetie, I. and S. Company,	Youghiocherry River Coal Company,	255	158	240	298
Southwest,	Cumberland and Elk Lick Coal Company,		120	50	179
Shay's Grassy Run,	Brown & Cochran,		233		208
Spring Grove,	McCrary Coke Company,		120	250	
Superior Nos. 1 and 2,	Youghiocherry River Coal Company,	65	287	220	240
Stafordshire,	do.		140	100	
Sandy Run,	Sterling Coal Company,		232		216
Sterling No. 3,	Pittsburgh and Chicago Gas Coal Co.,	200			
Snowden,	Cumberland and Elk Lick Coal Company,				197
Shaws,	Summit Coal Company,		233		20
Spangler,	W. H. Piper & Co.,				228
Summer No. 2,	do.				143
Stirling No. 11,	Sterling Coal Company,				123
Sterling No. 12,	do.				205
Smithton No. 2,	Waverly Coal and Coke Company,		305	300	310
Turners,	J. L. Turner,	275	262		
Tip-Top,	H. C. Frick Coke Company,			310	
Tyrone and Washington,	Laughlin & Co.,			266	260
Turner,	H. C. Frick Coke Company,	269	242	189	135
Trotter,	J. M. Turner,	310	200	310	210
Thompson's Run,	Thompson's Run Coal Company,			60	
Tom's Run,	Hooper, Spees & Co.,				
Tunnel Mines No. 1,	do.	188	240	244	
Tunnel Mines No. 2,	Clearfield Bituminous Coal Company,			34	
Tremont,	John A. Wood & Sons,	180	112	125	158
Turners,	Central Coal Company,			226	
Tannerdale,	St. Mary's Coal Company,	310	208	235	
Tunnel,	J. W. Cook,			89	
Tyrone,	Laughlin & Co. Limited,	309	172	305	308
Tub Mill Run,	Railview Coal Company,	338	187	212	182
Thomas Mine,	Thomas & Smith,	238	220	238	239
Tipton,	J. M. Turner,	113	262	232	100
Tyler,	do.				
Troy, Run,	R. B. Wigton & Son,		230	175	196
Troun Run,	do.			137	111
Upper Walton,	Joseph Walton & Co.,	199	230		
Union Coal and Coke Mine,	Union Coal and Coke Company,				
Uniondale,	J. M. Reid,	198	86	255	148
United,	United Coal and Coke Company,	227	270	232	79
No. 2,	do.				
Union,	McClure & Co.,	210	247	281	283
Empire,	Snowden & Simpson,	148	180	217	150
Union,	J. D. Boyd & Co.,	285	260	245	151
Urey No. 1,	Henry Floresheim,			130	106
Union Valley,	do.	233	238	147	
Urey No. 2,	Gray & Bell,			175	106
Venture,	David M. Anderson,		216	209	193
Venetia,	H. C. Coke Company,				
Valley,	California Coal Company,	271	279	264	259
Vigilant,	Gray & Bell,		213		281
Venture,	Victor Coal Company,	124	146		155
Victor Nos. 1, 2 and 3,	Vesta Coal Company,				188
Vesta No. 2,	R. B. Wigton & Sons,	249	250	225	103
Vulcan,	do.				
Vesta No. 3,	Vesta Coal Company,			135	113



REPORTS
OF THE
INSPECTORS OF MINES.

COMMUNICATION.

Department of Internal Affairs,
Harrisburg, June 19, 1894.

To His Excellency Robert E. Pattison, Governor of Pennsylvania:

Sir: In compliance with the requirements of the Act of June 30, 1885, relative to the Mine Inspectors' Reports of the Anthracite and Bituminous Coal Regions, and of the Act of April 23, 1889, I have the honor to present to you for transmission to the General Assembly the reports of the Inspectors of this Commonwealth for the year 1893.

Very respectfully yours,

THOS. J. STEWART,
Secretary of Internal Affairs.

MINING STATISTICS.

The following tables, prepared by the Bureau of Industrial Statistics, contain a summary of the production of coal, number of persons employed and accidents resulting from their employment for 1893, and also a comparison of the statistics with similar ones for previous years.

The aggregate production of anthracite coal for 1893 was 47,179,563 tons, an increase of 1,444,189 tons over the production for 1892. Luzerne is the leading county and produced 18,253,144 tons. Lackawanna comes next, producing 11,667,550 tons. The third producing county is Schuylkill, which produced 9,992,085 tons, and the fourth in rank is Northumberland, producing 3,731,404 tons. One other county may be mentioned, Carbon, which produced 1,510,289 tons. The production of Cambria, Dauphin, Sullivan and Susquehanna counties was very much smaller and aggregated only 2,025,088 tons.

The increased production for 1893 required the employment of 8,224 more men, or an increase from 129,797 to 138,021. The average annual production of coal per man was the following:

1893,	.....	342 tons.
1892,	.....	352 tons.
1891,	.....	360 tons.
1890,	.....	281 tons.
1889,	.....	242 tons.

The bituminous coal field is much larger, but the figures show no such increase in production for 1893. On the other hand, there was a considerable decline in production from that of the previous year, as 43,421,898 tons were produced, while in 1892 the production was 46,576,576 tons. The decrease, also, in the production of coke was very large. In 1892, 7,891,630 tons were produced, while in 1893 but 5,549,296 tons were produced, or a decrease of 2,342,334 tons. As usual, Westmoreland leads in production, 7,583,346 tons having been produced in that county during 1893. Allegheny county comes next with a production of 6,894,510 tons. The production of two other counties, Clearfield and Fayette, are nearly the same, the former producing 6,081,324 tons, while Fayette produced 6,105,845 tons. The production of four other counties may be mentioned: Washington, producing 3,414,444 tons; Cambria, producing 3,377,459 tons; Jefferson, producing 3,072,297 tons, and Centre county, producing 1,259,351 tons. The production of the other counties falls considerably below these figures. The leading coke-producing counties are Fayette and Westmoreland, the production of the former being 3,011,054 tons or a decrease of 1,257,771 tons from the production of 1892. The production of Westmoreland county was 1,700,889 tons, a decrease

of 925,565 tons from the production of 1892. The number of men employed in the bituminous coal field for 1893 was 81,800, and for the previous year 78,789. Notwithstanding a decrease in production of both coal and coke, there was an increase of 3,011 in the number of men employed. Of course, it follows that they could not have been employed as regularly during 1893 as they were during 1892. At all times employment is less regular in the bituminous coal field than in the anthracite, but during the year under review the bituminous coal miners were employed for shorter aggregate periods than those engaged in mining anthracite. The average annual production of bituminous coal per man for the last five years is shown in the following table:

1893, ...	531 tons.
1892, ...	590 tons.
1891, ...	564 tons.
1890, ...	609 tons.
1889, ...	565 tons.

Next may be given a summary of the accidents, fatal and non-fatal, in mining coal. First of all, a comparison may be made between the fatal accidents attending the mining of coal in the two regions:

	1893.	1892.	1891.	1890.	1889.
Anthracite, ...	455	396	427	378	384
Bituminous, ...	131	133	237	146	105

The percentage of fatal and non-fatal accidents for the number employed during the last five years in the anthracite and bituminous regions is the following:

Anthracite Region.

Fatal Accidents.

1893, 1 to 303 employees.
1892, 1 to 327 employees.
1891, 1 to 288 employees.
1890, 1 to 311 employees.
1889, 1 to 312 employees.

Non-fatal Accidents.

1893, 1 to 129 employees.
1892, 1 to 127 employees.
1891, 1 to 122 employees.
1890, 1 to 116 employees.
1889, 1 to 120 employees.

Bituminous Region.

Fatal Accidents.

1893, 1 to 1624 employees.
1892, 1 to 592 employees.
1891, 1 to 312 employees.
1890, 1 to 458 employees.
1889, 1 to 581 employees.

Non-fatal Accidents.

1893, 1 to 236 employees.
1892, 1 to 200 employees.
1891, 1 to 235 employees.
1890, 1 to 177 employees.
1889, 1 to 203 employees.

The percentage of fatal and non-fatal accidents in the two regions for the period of five years, for the number of tons mined, is the following:

Anthracite Region.

<i>Fatal Accidents.</i>	<i>Non-fatal Accidents.</i>
1893, 1 for 103,691 tons.	1893, 1 for 44,134 tons.
1892, 1 for 115,501 tons.	1892, 1 for 44,817½ tons.
1891, 1 for 103,923 tons.	1891, 1 for 44,253½ tons.
1890, 1 for 106,260 tons.	1890, 1 for 39,729 tons.
1889, 1 for 101,490 tons.	1889, 1 for 39,051½ tons.

Bituminous Region.

<i>Fatal Accidents.</i>	<i>Non-fatal Accidents.</i>
1893, 1 for 331,465 tons.	1893, 1 for 125,497 tons.
1892, 1 for 350,199 tons.	1892, 1 for 118,515½ tons.
1891, 1 for 176,319 tons.	1891, 1 for 133,081½ tons.
1890, 1 for 273,420 tons.	1890, 1 for 107,609½ tons.
1889, 1 for 329,101 tons.	1889, 1 for 114,803 tons.

With respect to the greater fatality attending the mining of anthracite coal, we would refer our readers to the explanation contained in the previous report on this subject. (See page VIII.)

Another table is given, showing the activity of all the collieries in the State for the last five years. For any explanation that may be desired concerning this table, the reader is referred to the remarks contained in the previous report.

FIRST ANTHRACITE DISTRICT.

(LACKAWANNA AND SUSQUEHANNA COUNTIES.)

Scranton, Pa., April 18, 1894.

Hon. Thos. J. Stewart, Secretary of Internal Affairs:

Sir: I have the honor of presenting herewith my report as Inspector of Coal Mines for the First Anthracite District for the year 1893.

The total quantity of coal produced was 6,202,131.34 tons, an increase of 347,493 tons over that of the previous year.

Fifty-one fatal, and ninety-six non-fatal accidents occurred during the year, which are four fewer fatal, and nineteen fewer non-fatal than occurred in 1892.

The number of wives made widows was twenty-five, and eighty-one children were made fatherless by the accidents.

The quantity of coal produced per life lost was 121,630 tons, an increase of 15,183 tons over the quantity produced per fatal accident in 1892.

The number of tons of coal produced per accident, fatal and non-fatal, was 42,191.

The report contains, in addition to the usual tables, descriptions of all improvements made during the year, of some of the fatal accidents, together with some remarks on the causes of most of them, which, I trust, will prove interesting and beneficial to those who may read them.

Respectfully submitted,

EDWARD RODERICK,

Inspector of Mines.

CONDITION OF MINES AND OTHER GENERAL REMARKS.

In the condition of several of the mines of this district considerable improvement has been made during the year, which has resulted in a marked increase in the quantity of air circulating through them, over the quantity in circulation during 1892.

Three new air shafts were sunk, and three new second openings completed, two others are in progress which when finished will add materially to the general healthful condition and safety of these mines. There were 8,609 persons employed in separate air currents at the close of the year, and a total of 415 cubic feet of air per person entering at the inlets, and over 344 cubic feet for each person circulating at or near the face of the workings.

To this number of persons must be added 1,217 who worked in the mines, but who were not employed in any particular split of air, making a total of 9,826 employes in the mines of this district at the end of the year, and for each of these there was over 363 cubic feet of air in circulation.

The average time worked by the collieries was $195\frac{1}{3}$ days, and the total quantity of coal mined was 6,202,131.34 tons, an increase of 347,493.04 tons over the production of 1892, and of 816,959.88 tons over that of 1891.

The average production per day was 31,752.06 tons, showing that the producing capacity of the mines of the district is nearly that of 10,000,000 tons a year.

There were employed in and around the mines during the year fifteen thousand, six hundred and thirty-four persons.

Of this number fifty-one lost their lives, which is less than one-third of one per cent. of the total number employed.

In the production of this quantity of coal there were consumed two hundred and ten thousand five hundred and eighty-four kegs of powder, of twenty-five pounds each, or a total of 5,264,600 pounds, or one pound of powder consumed for every 1.18 tons of coal mined, or twenty-nine and a half tons to the keg.

GENERAL REMARKS ON ACCIDENTS, THEIR CAUSES, AND HOW TO PREVENT THEM.

The number of persons who lost their lives while following their daily occupations in and about the mines of this district during the year was 51; and 96 were more or less seriously injured, making a total of 147 accidents.

Of this number, 92, or nearly 62.6 per cent., occurred to persons among the nationalities who are supposed to have a far better knowledge of the methods of mining than the nationalities among whom the other 55 casualties occurred. Among the former class are included Americans, Irish, English, Welsh and Germans, and among the latter the Slavish, Polish, Italian, Austrians, Hungarians and Russians, whose knowledge of mining is believed to be, and undoubtedly is, to some extent—among the class of workmen that come to this country—far inferior to the knowledge of the former.

The number of workmen of the first mentioned nationalities in and about the mines of this district is somewhat greater than that of the latter, yet the proportion of accidents occurring to the English-speaking workman is nearly in the same ratio to those occurring to the foreign element.

Looking at this matter in the light of justice and fairness, we must consider that the Hun, Pole, Slav, Austrian, Italian and Russian workmen, are, as yet, mostly employed as laborers by English-speaking miners, and who, therefore, are directly responsible for their safety while they are working in their chambers with them, and when we pause to realize that of the twenty laborers who were killed this year while loading coal, twelve of them were working for experienced, English-speaking people, it goes to show that there is as much, if not more, thoughtlessness, oversight, neglect of taking proper precautions, recklessness, indifference to danger, and contempt for it among the intelligent and practical miners as there is among the less informed people of foreign lands, against whom there are so many false assertions of stupidity made by various people in this, as well as other localities.

It is a remarkable fact that for the want of a realizing sense of the foolhardiness of taking unnecessary risks, many persons in and around the collieries lose their lives every year, and one of the most fruitful causes of accidents from falls of coal and roof, is the almost mad haste and hurry on the part of most miners "to cut enough coal for the shift and get out early."

It is owing to this unnecessary haste among miners that they neglect to stand props when it becomes necessary, in order to secure safety; that they frequently stand props without cutting a "hitch" for them in the "bottom," and thus cause them to be easily "knocked out" by flying coal from a shot; that, after a prop has been displaced, they proceed to replace it under a dangerous piece of roof without first making a proper examination of the same; that they rush back after a shot has been fired and begin to work under a dangerous roof before the smoke of the blast has had time to clear; that if a squib is a little longer burning than usual they hurry back to the face just in time to receive the full contents of the shot; and last, but not the least frequent by any means, is the risk they take of going back too soon to a hole that apparently has missed firing, which is caused, oftentimes, by a defective squib, but more frequently by small coal or dirt falling into the needle hole, and thus for an instant retarding the progress of the squib on its way to the powder.

Eighteen miners and twenty laborers were killed this year from various causes. While it is undoubtedly true that a few of these casualties were purely accidental and unavoidable, it can be just as

truthfully said that the major portion of them were the direct results of oversights and indifference on the part of miners.

It frequently happens that a shot in the bottom or mining bench of coal fails to "bring it out," and the miner, after getting back to the face, and seeing that the shot has been a failure, invariably, if he is in a hurry, makes some rash remark of disapproval, and at once begins to "work it out," if possible, with a pick.

The top coal may be overhanging for a short or long distance, as the case may be, and may have been violently shaken or badly shattered, even to the point of falling, by the recently fired "hole," but the miner oftentimes does not notice this, allowing his entire attention to be absorbed by this failure.

Then, again, the "hole" may have had just enough powder to give the burden intended for it to "blow out" a good shaking, and a little further effort on the part of the miner with a good pick would have soon accomplished its removal.

Now, wholly taken up by the gratification that is invariably felt when successfully "working out" a good shot, the miner sometimes forgets that he is at the same time working out the only support from under the top coal, and before he is aware of any danger of its falling it is down, and the unfortunate man is either killed at once or more or less seriously injured by the fall. On the other hand, if the top coal has not fallen while the miner was working out the shot, and if he has sufficient coal for the day's complement of cars, he goes home, perhaps as early as nine o'clock in the morning, leaving the laborer there to load the coal into the cars as they are brought to him, one by one, by the driver, until the last car comes, when he is compelled to go under the "top coal" to get sufficient coal to "top off" the car.

The coal overhead may have been perfectly safe in the morning before any coal was blasted from under it, but, since its support has been taken away, it has been bearing down, and finally, when least expected, breaks off and falls, without any warning, with disastrous results to the poor laborer.

It is worthy of note that, with one or two exceptions, 101 out of the 147 accidents which occurred in this district during the year, occurred to miners and their laborers, and the greater portion of them are directly traceable to the habit of taking one or all of the above enumerated and sometimes foolhardy risks.

The law requires that the mine foreman or his assistant must visit each working place at least once every alternate day and make a careful examination of the same. This, I have reason to believe, is being done in every mine of the district; yet I have been called upon to inquire into the cause of death in several cases during the year and after careful examination have found, from persons who were present when the foreman had given orders to take down loose coal or rock,

that the persons killed had promised to immediately comply with the orders given, but, after the foreman had gone on his rounds, they again began to follow their usual occupation and were killed thereby later in the day. In one case a foreman had given orders to blast down a mass of top coal, but had not gone 200 yards away before the miner began to cut the prop supporting it with an ax; he struck a few blows and was crushed into a mangled mass.

Every one acquainted with mining knows that a gangway or chamber may be perfectly safe in the morning when the foreman makes his visit, but before the miner quits work there will be top coal hanging, and unless the miner carefully guards against the danger of its falling he may, notwithstanding the foreman's visit in the forenoon, be taken out painfully, if not fatally, injured.

And now, in closing on this point, I will say that it is to the miners alone we can look more particularly than to any one else for a reduction in the number of accidents from falls of coal and roof.

In addition to the risks already described there are many other dangerous practices indulged in by boys and men alike, in and around the coal mines, which frequently prove more or less disastrous to the people indulging in them, and thus, unnecessarily adding to the number of fatal and non-fatal casualties occurring each year, which may, and with some profit, can be herein made the subject of brief comment.

In breakers, for instance, the machinery is all safely fenced off so as to prevent persons from inadvertently walking against it and getting hurt, yet two little breaker boys lost their lives last year, notwithstanding all the precautions taken to ensure safety to them.

One little fellow, during an idle spell in the breaker, climbed up upon the fence surrounding the screen and with his hand was knocking out some pieces of coal that were fastened in the meshes, when his coat sleeve caught in a bolt and he was pulled over and squeezed to death between the screen and the fence on the other side.

The other boy, also during a "rest," and while the breaker boss was absent for a few minutes, climbed above the main screen and walked along a plankway to a point near the buckwheat coal screen, where he fell into the hopper and slipped into the rapidly revolving screen and instantly met his death.

One driver lost his life by a kick from a mule which he was poking in the ribs with a small stick. Another was kicked by a mule and killed while sitting on the bumper sliding his foot along the rail, while the third was killed by a miner's recklessness in letting a car run away from his chamber.

Two door boys were killed this year, one while stealing a ride on a

trip of empty cars going up a plane which jumped the track and collided with the loaded trip coming down the plane.

The other, who was an active little fellow, fell off the front end of a car and was squeezed to death between the car and the rib.

The former was well aware of the standing orders that no one was allowed to ride up or down the plane, and the latter had frequently been admonished and cautioned against jumping on cars, and even threatened with immediate discharge if caught in the act.

In conclusion, I would say that on my visits through the mines I frequently ran across miners "making up powder" with a lighted lamp in their hat, while the law says that the lamp shall be kept five feet away, and in such a position that the sparks cannot be conveyed to the powder. I have more often gone into miners' places where they were taking risks with top coal or roof, and after reasoning with them about the great danger of the practice they will remark "You are right; but I guess a man may as well pass in his checks that way as any other." Others will remark, "If I do it, I do it on my own responsibility," and many other imprudent and foolishly bold expressions of a similar nature are very often made.

Now, it is my opinion, and I think those acquainted with mining coal will bear me out, that the greater number of each year's accidents occur among the smart class of men, or through their recklessness to others.

There were four fewer fatal and nineteen fewer serious non-fatal accidents in this district this year than last, yet it is my candid belief that this number can be greatly reduced in the future if, as I have stated in my former report, a more systematic rule is adopted in regard to securing the roof with props. To rightly stand, a prop requires that a "hitch" or hole be cut in the bottom for the prop to stand in, and in the top or roof, if it is smooth and regular a rough place should at least be made, if not a small hole, for the head of the prop to secure it.

Where it is necessary to put cap pieces it is very important to have them cover the entire "head" of the prop in order to properly secure it against being "knocked out" by flying coal from a shot.

It is also most essential in all mines, in order to have the number of accidents reduced, to have a strict and rigidly enforced discipline and a close watch kept by the foreman and his assistants on all persons whom they have reason to believe are inclined to be reckless of or indifferent to the established rules of the mine. Some of this class are found in every mine and colliery, and to them special attention should be given and when they are caught violating any rule, the official in charge should at once take cognizance of the fact and mete out whatever punishment, in his judgment, the case may require.

DESCRIPTIONS OF ACCIDENTS.

I have endeavored to give herewith a somewhat detailed description of some of the fatal accidents that occurred in this district during the year for the want of taking ordinary precautions to prevent them. I firmly believe that if the miners could see and read these descriptions from year to year that good results would ultimately follow. But, in view of the insignificant number of reports which the Inspectors receive each year to distribute among the officials and workmen of their respective districts this task seems almost useless; yet I have not refrained from giving some details in regard to accidents, which, I trust, may do some good in the future.

BY-FALLS.

No. 2. John Munly, a miner, aged twenty-nine years, was instantly killed at the Pancoast on the 4th day of January by a fall of coal. While working this chamber he had been repeatedly cautioned against taking any risk with the top coal as the place was near a "fault" and the coal was very "slippy."

A few minutes before the fatal fall of coal occurred a man who was standing nearby called his attention to its dangerous condition; he remarked that he would take it down after a while, and continued to mine out the bottom bench of coal until the loose piece fell, striking him on the back of the neck, breaking it and killing him instantly.

No. 4. On the 7th day of January, at the Lackawanna shaft, Thomas Daniels, a miner aged twenty-nine years, was instantly killed, and Richard Alsop, a runner, was slightly injured. In my investigation I learned that Daniels had been ordered by the mine foreman on the day before the accident occurred to take his tools to another chamber, but, having some loose coal which he wanted to load, continued to work in this place all day Friday the 6th, and on Saturday morning, the 7th, he went there again to finish loading a car which he had left half loaded on the previous day. The runner, who supposed the car was loaded, went up to run it down, but finding it was not loaded, began to pick at the face of the breast and while so engaged a large mass of rock fell, completely covering him up.

Daniels, who was standing nearby, was struck on the head by a sharp-edged piece of rock about two feet square and instantly killed. Had he obeyed orders, instead of trying to scrape this last car of coal, it is very evident that he would not have met such a sad fate.

No. 5. John Moleski, a laborer, 40 years of age, was found dead in the carriage pit of the Storrs No. 1 shaft about 7 o'clock p. m., January 11.

Investigation made on the following day revealed the facts that the day of his death was his first day in the mine as a regular day laborer.

Upon questioning two miners who were fellow countrymen of his, I learned that the deceased had come into this mine on several occasions with a miner named Louis Dombroski, not as a laborer, however, but of his own accord, for the purpose of acquainting himself with the mine and to learn the way to load coal, with a view to becoming a miner's laborer, (this being a common practice with this class of people in the coal regions.) On this day the miner by whom he was employed went home about 3 o'clock, leaving him to load the coal. After completing his day's work, he also started for home, and on getting to the foot of the shaft, instead of going from the west to the east side of the shaft by way of the regular traveled way to signal for the carriage, he attempted to cross the shaft and was caught and crushed to death by the descending carriage. Operations at the mine had ceased since 3 o'clock, and the footman did not leave the bottom of the shaft until 5.30 p. m. At 6 o'clock the night shift men went down, and while working around the foot of the shaft discovered the body in the sump.

No. 8. John Denvers, a miner, aged 35 years, was fatally injured at Storrs, No. 2, on the 22d day of February. I visited the scene of accident shortly after and found that Denvers, who was driving a gangway, had been told of the dangerous condition of the roof in his working place that morning by the fire boss. He also remarked to several miners who worked nearby that the "top was bad" and that he would take it down after loading a car that was standing in the gangway. He and his laborer began loading the car and had it about half full when a large flake of boney coal fell, struck Denvers on the back, injuring him so severely that he died from the effects of the same on the following day.

No. 9. William Nichols, an English miner, 46 years of age, was instantly killed at Jermyn No. 1 on the 4th day of February. After arriving on the scene of accident, if such it can be called, it was not difficult to discover the cause of this man's death. The mine foreman had given orders to blast down some top coal which he considered unsafe to travel under. Instead of obeying the orders to blast it down, Nichols, after the foreman had left the place, began to remove the props supporting it by chopping them with an ax. He was permitted, however, to cut but one of them before the coal came down in one great mass upon him. His fellow miner testified that the foreman gave strict orders that morning not to remove the props by cutting them, but this Nichols did and paid the penalty.

Rule 55 of the mine law is very explicit on the way props should be removed. It states that no person or persons working in any coal mine or colliery shall cut any props or timber while the same are in position to support the roof or sides. When it becomes necessary to

remove any of the said props or timbers for the purpose of mining coal that may be supported by the same, to dislodge any of the said props or timbers it must be done by blasting.

No. 10. On the 7th day of February James Coggins, an Irish miner, aged 56 years, was instantly killed at Olyphant, No. 2. The circumstances leading to this fatality are similar to the one above. John Quinn, a miner, who was standing near by when the fall occurred, stated that the deceased was standing on a car replacing a prop that in some way had become loosened. He struck the prop with an ax, and immediately a massive piece of rock which the prop was supporting, fell upon him and crushed him into an unrecognizable mass.

No. 19. On the 24th day of April Patrick O'Horo, an experienced miner, 45 years of age, was instantly killed at Gypsy Grove, No. 1, by a fall of top rock. It was gleaned from the evidence of those who were working near by that he had sounded this rock during the morning and had found it unsafe, but, instead of taking it down, continued to mine the coal from under it until he was caught in the act and instantly crushed and thus adding another to the many who lose their lives through over-confidence in the safety of the roof.

No. 20. Carry Labuski, an Austrian, aged 25 years, employed as a laborer, instantly lost his life at Edgerton, No. 3, on the 26th day of April by a fall of "eight-inch boney." The miner by whom he was employed had but a few days before begun robbing a pillar between two chambers which had been abandoned for something over a year. The roof was solid sand rock and perfectly safe, and knowing this to be the case he took it for granted that all was safe, and without examining a flake of "boney" which projected about four feet over the pillar, he began blasting and after firing several shots this flake of "boney" fell, the edge of which struck Labuski and instantly caused his death.

No. 23. Joe Jalawiska, an Italian, aged 25 years, was instantly killed at Richmond, No. 3, on the 13th day of May. He and another fellow countryman were employed as laborers by two miners named Andrew Kelley and John Mulheren. From the testimony of the two miners it would seem that a shot had been fired on the rib near the face of the breast, the object of which was to bring down some overhanging top coal and boney that was known to be dangerous since quitting work on the previous day. An effort to pull it down had also been made on the day before the accident, but failing to get it down by barring they concluded to let it alone until the next day, when they would blast it down. With this object in view, the shot above mentioned was put in the rib under this loosened coal. After the shot had "gone off," Kelley, on getting back to the face, discovered that it had not accomplished its work and he again proceeded to bar it down. After telling Jalawiska to stand at the rear end of the car where he was safe, he took up a drill and standing upon the car

with his back turned toward his laborer he began the work of barring down. When the mass was about to fall, Kelley says that he turned around and saw deceased walking toward the face and shouted to him to get back, but before he could do so the fall came and crushed him to death.

No. 24. On May 15 Patrick Donlancy, 35 years of age, and employed as a miner, was fatally injured by a fall of coal at the Marine shaft. Upon inquiry, it was learned that he had fired a shot in the top coal. When he got back to the face he found that it had not been blown down, but instead of trying to bar it down he went under it and began to work out the bottom coal, which was the top coal's only support. While he was thus engaged the top coal fell upon him injuring him so seriously that he died in two hours afterward. While known as a careful miner, it must be said that he lost his life by a sad mistake of judgment on his own part.

No. 28. Frank Zinkus, a Polish laborer, 28 years of age, was instantly killed at Simpson Slope on the 2d day of June. The miner was engaged taking back top coal over which there is a solid sand rock roof. A large flake of what is known as 14-inch had been left to overhang for ten feet, and which was solid on the previous day. The miner was close to the rib drilling a hole in the top coal, while the laborer was busy throwing back some coal to load the car when the fatal 14-inch fell upon him. Had the miner been killed it could then be justly said that he lost his life through his own reckless mistake, but as it is, it can only be said that another comparatively young life has been brought to an untimely end by the gross carelessness of one who had charge over it at the fatal moment.

No. 29. At the Marine shaft on the 8th day of June, Thomas Brown, a Polish miner, 35 years of age, instantly lost his life. On my visit to the scene of this fatal occurrence I found the place was what could be called a very safe one, the vein only six feet thick; the roof, with one exception, was good. As a precaution against any danger from falls the place was well propped. Brown had, a few minutes previously, fired a shot, the flying coal from which had struck and loosened a prop that was supporting a loose piece of rock. On returning to the face Brown discovered this displaced prop, but instead of placing up another to support this loose slab, he struck and knocked it out, and then began the work of replacing, and, while so doing, the rock fell and instantly caused his death.

Michael Collins, another miner, stood nearby and urgently pleaded with him not to touch the displaced prop until he would have "stood" another to ensure his own safety, but Brown would not listen and had his own way with the above natural but sad result.

No. 30. In my investigation of the accident which occurred at Eddy Creek shaft on the 20th day of June, and whereby a Hungarian

laborer 18 years of age, named Michael Holinda, was so seriously injured that he died from the effects of the same six days later, I discovered that he came to his death through the carelessness or thoughtlessness of the miner by whom he was employed. In some portions of this mine, while the main roof is good and strong, there is between this roof and the coal a slab of boney from three to five inches thick and is known as "falling roof." The main roof in this place was first-class, and had ordinary care been exercised this accident would not have occurred. Gonizila, the miner, one hour before the accident took place, had been trying to bar down this slab; but, failing to do so as readily as he desired, he ceased his efforts and pronounced it safe; but later events have proven it was not. This is another case to the many where one man meets his death through the negligence and ignorance of another.

No. 31. George Ritseo, a miner, aged 35 years, instantly met his death at Forest City slope on the 20th of July by a fall of rock. He had fired a shot a few minutes before, and his death occurred while he was in the act of barring out that which had been shattered by it. From the evidence of his laborer, who was the only person to witness the occurrence, it was learned that immediately after the shot had "gone off," without paying any attention to the roof, he began to work out the loosened coal, and was thus engaged when the rock that caused his death fell upon him. Had he paid the least attention to the roof he surely would have noticed this treacherous slab in time to save his life, but this he neglected to do and paid the penalty of his own indifference.

No. 34. Patrick Kelley, a miner, 52 years of age, was fatally injured at Eddy Creek shaft on the 2d day of August. It was plainly evident to me, when making the investigation, that Kelley must have known that the slab overhead was dangerously loose from the fact that he had that day placed two props within four feet of the face of the breast. Michael Kelley, who was employed by his father as a laborer, and who was the only witness to this very sad occurrence, stated that his father was well aware that the slab was very loose and that it was his intention to first load a car that was standing in the breast, and after that to stand a prop under this loose slab of rock, but, while busy shoveling back some coal from the face to load the car, the rock fell and almost instantly caused the death of the father, the son barely escaping the same sorrowful fate.

It was noticed that a "slip," or "slant," as they are sometimes called, had greatly weakened this slab along the face of the breast, and as there was no prop to support it at the outer edge it could but fall.

No. 35. At Mt. Jessup slope, on the 9th day of August. Michael Gerity, a miner, 47 years of age, was fatally injured. At the time of the

accident he was engaged taking a skip off a pillar between two crosscuts. On the right of the track that ran along the pillar, and directly opposite to where he was employed, two props had been placed by him in close proximity to one another to support a bad piece of roof which extended across the track, and, as was afterwards discovered, two feet over the pillar. On the left of the track, near the corner of the crosscut and pillar, and opposite to one of the above props, another prop had been placed to prevent this loose piece of rock from falling.

Gerrity fired a shot under the pillar which cut out the two feet of coal supporting the end of this slab and also knocked out the prop above mentioned. Shortly after this shot had been fired he returned to his working place but had not been there a moment before this rock fell on him and crushed him so severely that death resulted in a few hours afterwards. The unfortunate man stated to several persons who hurried to his rescue that he had not sounded the roof before going under it after firing the shot.

That he had neglected to do this was also obvious from the fact that no drill or pick could be found near the place by any of those who took him out from under the fall. Inasmuch as this rock fell in less than a minute after he went under it, it is plainly evident that if he had simply stopped for a moment to glance at it before going under it, it would have fallen, and with no serious result, while he was looking at it; but this most essential precaution he neglected to take and consequently paid the penalty with his own life. The rock measured eight feet by ten and was twenty-two inches thick at the centre, tapering to a thin edge on all sides. These detached pieces of rock in the roof are the most dangerous and treacherous things the miners have to contend with in the mines of this district, where they are numerous and frequently fall without the least warning. Yet, notwithstanding this, when once the miners have discovered their danger, they should at once proceed to take measures to protect themselves against it by propping or by taking down the loose and dangerous material.

No. 37. On September 5 an accident occurred at the Lackawanna shaft which resulted in the instant death of John Shelinski, a miner, aged 42 years. In the investigation it was learned that David Evans, the assistant mine foreman, had noticed that the roof in Shelinski's place was bad and went in with him to the breast and directed him to take it down before he would do any other work. This he said he would do, and being a very good miner and on all former occasions very obedient to the orders of those in charge, Evans, never doubting but what his instructions would be carried out, left the place and proceeded on his rounds through the mine. Shelinski, however, did not carry out the orders given to him, but, on the contrary, continued to work on the coal until one o'clock that day when a thin slab of

rock fell from the roof near the west corner of the breast and gangway and instantly caused his death, as stated above. What caused this slab to fall can only be conjectured; inasmuch as the roof had been discovered to be bad it is natural to suppose that it had been continually "working" during the day and pressing downward causing this thin piece to break off and fall. This is another case to the many where old and practical miners have lost their lives by overconfidence in the safety of the roof, begotten by familiarity with danger.

No. 38. At Mt. Jessup, No. 3 slope, on the 19th day of September, an accident occurred whereby a Polish miner, 28 years of age, named John Rink, was so seriously injured that he died on the following day from the effects of the same.

From the evidence of his laborer, who was the only person present when the accident took place, it would seem that Rink had not examined the roof at any time during this day.

The roof at all points in this vicinity being good up to this time, would, in this case, like many before it, have a tendency to cause the miners to become indifferent to sounding it and thereby get caught where they least expected. Rink had just fired a hole and after waiting a few minutes for the smoke to clear, returned to the face of his chamber, stooped down to see what the shot had done, and while in this stooping position a heavy slab of roof fell on him and crushed his skull. The slab that fell was circular in form, measuring seven feet in diameter, about ten inches thick at the centre and tapering to a feather edge. While it is true that these loose pieces of rock, sometimes called "bells," sulphur, or fire bells, "hog backs," and "slants," as a rule are very hard to discover and to guard against, it does not necessarily follow that some of them, if properly examined, cannot be detected and many accidents avoided. And it is my opinion in this case, had Rink properly examined the roof of his working place after firing this shot he surely would have discovered the rock which fell on him and caused his death while yet but a young man. It is a good habit with some miners and one to which they owe their escape from danger oftentimes, to carefully examine the roof by sounding it after each blast.

No. 45. Joseph Smith, an English miner, 45 years of age, was instantly crushed to death by a fall of top coal at Jermyn, No. 1, on the 29th day of November.

His fellow miner, who was the only person present to witness this sad occurrence, stated that a shot in the top coal had been fired just a few minutes previously which had only shattered the coal and left it hanging.

Immediately after the shot Smith went to the face, but instead of

taking the precaution of sounding the overhanging coal, he proceeded to get ready to drill another hole. His fellow miner stood on the lower side of the breast, heard the top coal "working," and warned him several times of the great and useless risk which he was taking. He also told him that it was utterly unnecessary to put in another hole, as he thought the coal would soon fall of itself. But, regardless of the timely warnings and urgent requests of his friend and partner to come from the dangerous spot, he insisted on remaining and requested his friend to hand him a pick with which he intended to sound the coal and after that to prepare a place to drill a hole. A pick was thrown to him and while in the act of stooping to pick it up the overhanging and already shattered mass of coal fell and instantly crushed him to death, as above stated.

No. 46. John Burnock, an Austrian laborer, 32 years of age, met instant death on the first day of December at the Hendricks, No. 2 drift. After making a careful examination of the place and all circumstances connected with the sad affair, I came to the conclusion that he lost his life through over-confidence in the safety of a small piece of overhanging top coal. The miner by whom he was employed stated that he told Burnock that there was a small quantity of top coal above him that was not safe, and that he should step back until he (the miner) would bar it down. But, notwithstanding this order, he insisted it was "safe and solid," and before the miner could reach the place to bar it down, he walked toward the piece of coal and struck it with a shovel; the same moment it fell and struck him on the small of the back, instantly causing his death, though not a cut or serious bruise was visible. The quantity of coal that fell would not fill an ordinary wheelbarrow. The roof and sides were good and solid, and the place would be called a perfectly safe one in which to work, yet, by an utter disregard of the essential precautions that should at all times be taken when mining and touching coal, this man lost his life.

No. 49. A Hungarian laborer, named John Zockinski, was instantly killed at Mt. Jessup slope on the night of December 7. He was employed by a miner named James McAndrew, who stated that he examined the roof by sounding it before commencing to work there on that night. The day shift miner also said that he made an examination of it before leaving work that day, and both acknowledged that it sounded a "little drummy," but did not think it was dangerous. However, McAndrew and his laborer had not been at work but a few moments when a large mass of roof fell, completely burying the laborer, the miner barely escaping the same sad fate. It was found that the nearest prop to the face was twenty feet back, the gangway about seventeen feet wide, the roof, on the whole, was bad, and for a long distance back had been so bad as to require a

great number of props to ensure its safety. Ten or a dozen props of the proper length were lying on the side of the track, and if one of them had been placed under the roof by the day miner when he first discovered it to be "drummy" this poor fellow would not have lost his life; but, as it is, another life has been sacrificed by a want of good judgment and ordinary care on the part of old and experienced miners, and I can only add that as long as men disregard danger, when once it has been discovered, and neglect to take the proper precautions to ensure safety to themselves, as well as to those who may be under their charge, just so long will this class of serious and oftentimes fatal accidents occur.

ACCIDENTS BY CARS.

No. 3. On the 6th day of January, at Clifford shaft, Peter Gibes, a Polish laborer, 36 years of age, was caught by empty cars and fatally squeezed between them and the "rib." Upon inquiry I found that he was returning from his work and was walking on the track not far from the foot of the shaft, and along which, on the right there is a space of eight feet between the cars and the rib. As soon as the boy who was running the empties down from the stopping block discovered him he shouted to him to "look out," but instead of stepping to the right, where, as above stated, there is ample space for safe traveling, he stepped to the left, where there is only from eight inches to a foot between the car and the rib, and there stood watching the cars coming toward him.

No. 11. Benjamin Thomas, Welsh, a door-boy, 14 years of age, was fatally injured at Blue Ridge on the 13th of February, dying from the effects of his injuries on the following day. After an examination into the cause of this fatal occurrence I learned that while this young fellow was employed as a door tender he was, at the time he was injured about 200 feet away from his door. He had been riding on the front end of a loaded car and in jumping off slipped and got caught between the car and the rib and was severely squeezed. On the opposite side there was six feet of space between the car and the pillar. The foreman and the driver boss had given strict orders to this boy not to leave his door. His father, on the day he was injured, had severely chastised him for running after the driver, but in spite of all he did what he was forbidden to do and lost his life thereby.

No. 18. John Jablowishki, a Slavish laborer, 38 years of age, was fatally injured at Forest City shaft on the 14th day of April. After a careful examination of the place where he was struck by the cars that caused his death, and the circumstances connected therewith, I could only conclude that he alone was responsible for the accident. Just a few minutes before, he and W. J. McMullen, the miner by whom he was employed, were together on the gangway awaiting the

explosion of a blast. Soon after this occurred they went to the chamber, McMullin going to the face to make it secure, leaving his laborer in a safe place about fifteen feet from the main road. Instead of remaining at this place, he wandered out on to the gangway where he was struck by a trip of loaded cars that was slowly coming down a slight grade. He had but a few days previously begun to work in the mines, and from all accounts was an extremely dull fellow.

No. 25. At the Keystone, on the 24th day of Patrick Hennigan, a door-boy, 14 years of age, was instantly killed while riding up a plane on a trip of empty cars. I made a thorough examination of this case and found that the standing orders in this mine are that no persons are allowed to walk or ride on this plane during working hours, but Hennigan, who had gone to the foot of the plane for some purpose, instead of going around to the main way, jumped on the empty trip as it was leaving the foot. After going some distance up the plane the empties jumped the track and worked over to the loaded track and collided with the loaded trip coming down. A safety rope, extending from the front end of the first car to the rear end of the last car is used on this plane to prevent the cars from running away in case a coupling or drawback should break. It is supposed, from the position in which the cars were found, that the rear end of the last car of the empty trip was pulled around so as to come in contact with the front end of the first car of the loaded trip. Hennigan was found crushed to death beneath the rear empty car. This is another sad case of a young life brought to a sudden end by an utter disregard of all laws and rules made with a view of preventing such sorrowful occurrences.

No. 27. At Grassy Island shaft, on the 27th day of May, Michael Gorion, a Polish laborer, 40 years of age, was struck by an empty car and fatally squeezed between it and the rib. From the evidence given by Thomas Manley and John Lochney, the miner and driver who were present when the accident occurred, it was learned that an empty car which was being pulled up to Manley's chamber got off the track near the frog. Manley and the driver were trying to lift it on and Gorion was standing on the rear end to balance it. While in this position they heard a car coming down the next chamber inside. Manley shouted to his laborer to "look out," but instead of stepping to the lower side of the gangway, where there was four feet of space, he got between the empty car and the rib, where there was but ten inches of space.

He was not there, however, but a second before the loaded car struck the empty one and knocked it against him, with fatal results.

James Gaughan said that some one had told him to "hurry up," and thinking all was well pulled the block and let the car go. These three men knew that Gaughan had gone up into the next breast with

the intention of "running the car," and should have let him know that it was not all right to "run down," but instead of doing this they tried to get the empty car on the track and in the meantime run the risk of having the loaded car come down against them.

No. 42. Anthoney Solosky, a driver, aged 18 years, was instantly crushed to death at Jermyrn, No. 3, on the 13th day of October. Inquiry made into the cause of this accident revealed that the driver was going in the gangway with a trip of empty cars when he was struck by a runaway car from a breast. The miner who was working the breast from which the car came was about to fire a shot, and to avoid breaking the car, ran it down about 15 feet from the face and there left it standing without any block ahead of it. He then fired the shot and the flying coal struck the car and started it down on its way to the gangway, where it crashed into the empty trip and instantly caused the death of the driver and the mule. This man realizing the enormity of his reckless and miserable mistake, immediately left the locality for parts unknown.

BY EXPLOSION OF GAS.

No. 22. On the 11th day of May a Polish miner, 35 years of age, named Louis Dombroski, was fatally burned by an explosion of C. H 4 gas at Storrs, No. 1 shaft. A careful examination made the following day showed that he was employed driving a cross-cut from his own chamber to the one on the west, which had for some time been abandoned. An examination of this place was made every morning by the fire boss, but no gas was found in it since it had been finished; but, fearing lest gas should sometime gather therein and some one inadvertently walk in and get burned, two danger signals were placed across the track, one sixty feet from the face, the other one hundred and fifty feet from the same point.

Notwithstanding these precautions, Dumbrosky, who wanted to find out how far he was from being through with his cross-cut, walked up into this chamber, passed the danger signals with a naked lamp and crawled over the gob for a distance of twelve feet to the point where he expected to rap to his laborer in his own chamber. Here he exploded a small body of gas, which burned him externally and internally. He died from his injuries in eight days after the explosion.

SHOT THROUGH PILLAR.

No. 40. On the 9th day of October, at Forest City, No. 2 shaft, Stephen Sakel, a track layer, 28 years of age, was fatally injured. Investigation showed that at the time of the accident he was engaged putting down a short piece of track in a chamber. The miner in the next chamber drilled a hole on the rib, and fired it without giving any warning to those working on the other side. The shot

blew through the pillar and the flying coal struck Sakel on the head, fractured his skull and caused his death two hours later.

Rule 33 of the mining law distinctly states that when a workman is about to fire a blast he shall be careful to notify all persons who may be in danger therefrom and shall give sufficient alarm before and after igniting the match, so that any person or persons who may be approaching shall be warned of the danger. The miner who fired the above mentioned shot, realizing that he was guilty of gross recklessness fled from the country.

BREAKER ACCIDENTS.

No. 12. At the Dolph breaker, on the 27th day of February, Peter Haley, a slate picker, 13 years of age, was instantly crushed to death between the screen and the frame which is built around it.

By diligent examination of several persons who were near by when the accident occurred, I found that the little fellow, during an idle spell in the breaker, got out of his seat and up on a platform that runs along the screen, upon which the oiler walks to oil the screen shaft. This platform stands about four feet above the slate pickers' seats, and no boys are ever permitted to get upon it. But this day, while the breaker boss was for a few moments in another part of the breaker, Haley got up on the platform and was knocking out the small pieces of coal that were fastened in the meshes of the screen, and while so doing his coat sleeve caught in a bolt and he was pulled over and instantly killed.

No. 50. Arja Davis, a slate picker, 14 years of age, was instantly killed at the Blue Ridge Coal Company's breaker on December 15th. On the following day I made a careful examination of all the circumstances connected with the fatal occurrence and arrived at the conclusion that the little fellow came to the end of his earthly career by going to a place in the breaker where he had no reason, other than curiosity to go, which to reach took considerable climbing.

The only witness to the sorrowful event was another small boy named Titus Griffith, whose day it was to see that the hopper leading to the buckwheat coal screen was kept clean.

During an idle spell in the breaker, young Griffith went up to the hopper to make an examination. Davis followed him and while trying to get down to a point where he could observe Griffith working, he slipped through a circular hole two feet in diameter and directly into the buckwheat coal screen, where he was immediately killed by the swift motion of the revolving screen.

No. 57. On the 18th of December, a loader, 26 years of age, whose name was Walter M'Avoy, was fatally injured at Forest City breaker.

Upon inquiry made into the cause of this fatal occurrence I learned that he at one time had been foreman of the gang of loaders at this breaker, but for some time had been absent from the locality. On his return he was re-engaged and on this day assumed his accustomed duties. He was, therefore, no stranger to the work, nor to the mode of handling the cars under the breaker, and should have known better than to start a loaded box car from under the breaker in the way in which he did. He stood on top of the car with his back towards the lower side of the sloping roof, at which point there was two feet one inch of space from the top of the car to the stringers, which is sufficient for any one to pass through in safety, but for some unexplained reason McAvoy, instead of standing on the upper side of the brake, leaned over the brake wheel on the lower side, where, between the top of the brake and the stringers there was but eight inches. Consequently, he was so badly squeezed that he died in an hour afterwards.

CONSTRUCTION OF THE ACT OF JUNE 2D, 1891, RELATING TO THE
HEALTH AND SAFETY OF ANTHRACITE COAL MINERS.

COMMONWEALTH EX REL.,	{	September Term, 1893.
EDWARD RODERICK, Mine Inspector,		In Equity. Bill for Injunction. Submitted on bill
vs.		and answer.
JONATHAN VIPOND.	}	

The bill filed by the Mine Inspector sets forth the existence of a drift or opening known as the Old Butler mine, and also some parts of the stone foundation of what was formerly known as the Butler Colliery, long since destroyed by fire, no portion of which is now standing or remaining, and in connection therewith some parts of old boilers and a boiler house, which were formerly connected with the said Butler colliery and are now immediately adjacent to the ruins of said foundations; the said boilers being incomplete and not properly set, to be used without the construction of a stack and an entire re-arrangement of their situation and the completion of parts now wanting. It avers an intention on the part of the defendant "to erect and construct an entirely new breaker upon the said ruins and partial foundations, together with new ones to be built by them, and to make the necessary repairs and additions to the boilers so as to make them fit for use for the purpose of generating steam," and "to use the said breaker in the preparation of their coal." That such construction will place the boilers within 100 feet of the breaker and directly under it; and that the proposed action of the defendants is in violation of Article fifth, section 2 of the Act of June 2, 1891, to provide for the health and safety of persons employed in and about anthracite coal mines, etc., and should be restrained by injunction under the provisions of that Act.

The answer admits these matters with certain qualifications, averring that the foundations of the breaker remain intact, except the loosening of a few stones; that the boilers are uninjured and securely set, as originally located, and when the smoke-stack, which fell to the ground on the burning of the boiler-house is again set up and new grate bars put in, they will be in perfect condition for immediate use, without other repairs or additions, and that, instead of being under the breaker they will be forty-six feet distant. It further avers that the colliery was erected long before the passage of the Act of 1891 and stood unimpaired with its boilers located as at present for six months afterward, before its destruction by fire.

The case having been set down for hearing on bill and answer the averments in the answer must be taken as true.

The section of the statute cited in support of the bill is the following:

"It shall not be lawful to place any boiler or boilers for the purpose of generating steam, under or nearer than one hundred feet to any coal breaker or other structure in which persons are employed in the preparation of coal, provided that this section shall not apply to boilers or breakers already erected."

The plaintiff contends that the structures which the defendants propose to build are new erections and within the statute; this is denied by the defendants, the determinations of the cause must, therefore, depend on the proper construction of the section cited.

Statutory restrictions on the enjoyment of private property are to be strictly construed. The intent to abrogate existing rights must be positive and unmistakeable. The sections cited exhibit no such intent. On the contrary, it expressly excepts such rights from its provisions. By its proviso, boilers and breakers already erected are taken entirely out of its operation to all intents and purposes. They remain as if the restriction had never been enacted. Their freedom from this restriction necessarily extends to subsequent repairs, alterations and renewals; otherwise it might become impossible to carry on the operations for which they were erected. To hold that they may not be restored, replaced or rebuilt, if damaged or destroyed, is to leave the right to continue the operations dependent upon freedom from accidents or natural wear, or on the mercy of the elements. The exclusion of boilers and breakers already erected from the operation of the section by its proviso, logically implies the right to maintain them as they then existed.

The buildings which the defendants propose to construct, therefore, cannot be regarded as new and original erections within the purview of the section, but as the restoration of structures already built at the time of its enactment under a right of maintenance saved by its proviso. In this view, the present condition of the boilers is immaterial;

the defendants have a right to use them as they are, or with such repairs as may be necessary, or to replace them with new ones at their discretion.

The injunction is accordingly refused and the bill dismissed.

By the Court.

P. P. SMITH,

A. L. J.

November 13, 1893.

The annual examination of applicants for mine foreman and assistant mine foreman's certificates of qualification was held at Olyphant, Pa., June 20 and 21.

The examiners were Edward Roderick, Inspector of Mines, A. P. Patton, superintendent; James E. Morrison and Vaughan Richards, miners.

The following named persons were recommended to receive mine-foremen's certificates:

Joseph A. Dreacle, Scranton, Pa.
Peter Kelly, Scranton, Pa.
John D. Reese, Scranton, Pa.
Daniel M. Jones, Scranton, Pa.
John Lavin, Olyphant, Pa.
Charles F. Beatty, Olyphant, Pa.
John Kiggins, Olyphant, Pa.
George Wood, Olyphant, Pa.
John H. Pritchard, Olyphant, Pa.
James Tasker, Priceburg, Pa.
William F. Jones, Archbald, Pa.
David T. Davis, Plymouth, Pa.
Thomas Coats, Peckville, Pa.
John T. Evans, Vandling, Pa.

Those who were recommended to receive assistant mine foremen's certificates are the following:

Paul Bright, Scranton, Pa.
John R. Jones, Scranton, Pa.
Lewis H. Jones, Scranton, Pa.
Joseph Hadfield, Scranton, Pa.
Patrick McChrone, Scranton, Pa.
Meredith Morgan, Scranton, Pa.
A. L. Morgan, Forest City, Pa.

Total Quantity of Coal Produced During the Year 1893.

Delaware and Hudson Canal Company, ...	2,132,469.26
Hillside Coal and Iron Company, ...	935,195.62
Pennsylvania Coal Company, ...	220,041.00
Delaware, Lackawanna and Western Railroad Company, ...	399,519.06
Lackawanna Coal Company, ...	333,565.13
Edgerton Coal Company, ...	238,933.10
Northwest Coal Company, ...	260,729.00
John Jermyn, ...	228,516.31
Pancoast Coal Company, ...	200,757.12
New York and Scranton Coal Company, ...	209,086.00
Jones, Simpson & Co., ...	260,405.10
Elk Hill Coal and Iron Company, ...	125,406.00
Miscellaneous coal companies, ...	657,508.64
Total tons, ...	6,202,131.34

Number of Employes and Average Number of Tons of Coal Produced per Employe.

Delaware and Hudson Canal Company, ...	4,914
Hillside Coal and Iron Company, ...	2,284
Pennsylvania Coal Company, ...	628
Delaware, Lackawanna and Western Railroad Company, ...	886
Lackawanna Coal Company, Limited, ...	584
Edgerton Coal Company, ...	428
Northwest Coal Company, ...	426
John Jermyn, ...	670
Pancoast Coal Company, ...	568
New York and Scranton Coal Company, ...	507
Jones, Simpson & Co., ...	799
Elk Hill Coal and Iron Company, ...	316
Miscellaneous coal companies, ...	2,624
Total, ...	15,634
Number of tons of coal mined per person employed, ...	396.71

Number of Fatal Accidents, and Quantity of Coal Produced per Life Lost.

Names of Companies.	Number of fatal accidents.	Number of tons of coal produced per life lost.
Delaware and Hudson Canal Company, ...	13	164,036.09
Hillside Coal and Iron Company, ...	10	93,512.24
Delaware, Lackawanna and Western Railroad Company, ...	4	99,879.76
Edgerton Coal Company, ...	4	59,733.27
Blue Ridge Coal Company, ...	3	41,008.45
Mt. Jessup Coal Company, ...	3	33,275.67
John Jermyn, ...	3	76,172.10
Lackawanna Coal Company, ...	2	166,782.56
Jones, Simpson & Co., ...	2	130,202.55
Elk Hill Coal and Iron Company, ...	2	62,703.00
Miscellaneous Coal Companies, ...	5	265,053.88
Total and average, ...	51	121,630.02

Number of Fatal and Non-Fatal Accidents, and Quantity of Coal Produced per Accident.

Names of Companies.	Number of fatal and non-fatal accidents.	Number of tons of coal produced per accident.
Delaware and Hudson Canal Company, ...	33	64,620.28
Hillside Coal and Iron Company, ...	20	46,756.12
Delaware, Lackawanna and Western Railroad Company, ...	6	66,586.51
Edgerton Coal Company, ...	6	39,822.18
Blue Ridge Coal Company, ...	9	13,669.48
Mt. Jessup Coal Company, ...	3	33,275.67
John Jermyn, ...	5	45,703.26
Lackawanna Coal Company, ...	13	25,658.85
Jones, Simpson & Co., ...	4	65,101.27
Miscellaneous Coal Companies, ...	48	27,609.78
Total and average, ...	147	42,191.37

Classification of Accidents.

Causes of Accidents.	Killed or fatally injured.	Injured.	Total.
By falls of coal or bone, ...	10	15	25
By falls of ordinary roof rock, ...	12	20	32
By falls of bell shaped rocks and sulphur balls, . . .	10	1	11
By falling down shafts, ...	1	1	2
By premature explosion of blasts, ...		4	4
By explosions of gas, ...	1		1
By explosions of powder, ...		5	5
By cars inside, ...	9	22	31
By cars outside, ...	1	2	
Kicked by mules, ...	2	3	
Shot through pillar, ...	1	2	3
Struck by flying coal from blast, ...	1	10	11
Miscellaneous inside, ...	1	9	10
Miscellaneous outside, ...	2	2	4
Total, ...	51	96	147

Nationality of Persons Killed or Fatally Injured.

	Irish.	Slavish.	Polish.	Welsh.	Italian.	Austrian.	German.	English.	Hungarian.	American.	Russian.	Total.
Killed or fatally injured, . . .	11	4	14	5	1	4	...	2	5	5	...	51
Injured, ...	20	3	17	11	2	...	6	15	4	17	1	96
Total, ...	31	7	31	16	3	4	6	17	9	22	1	147

Occupation of Persons Killed or Injured.

Occupation.	Killed or fatally injured.	Injured.
Miners, ...	18	35
Miners' laborers, ...	20	28
Drivers, ...	3	18
Runners, ...	2	3
Door boys, ...	2	3
Company laborers, ...	4	1
Foot men and head men, ...		5
Shaft sinkers, ...		1
Slate pickers, ...	2	2
Total, ...	51	96

Table Showing the Occupation and Percentage of Persons Killed and Injured while Following these Occupations During the Year 1893.

Occupation.	Killed or fatally injured.	Per cent.	Injured.	Per cent.	Total.	Per cent.
Miners, ...	18	35.3	35	36.45	53	36.0
Miners' laborers, ...	20	39.2	28	29.16	48	32.7
Runners, ...	2	3.9	3	3.12	5	3.4
Drivers, ...	3	5.9	18	18.80	21	14.3
Door boys, ...	2	3.9	3	3.12	5	3.4
Company laborers, ...	4	7.9	1	1.04	5	3.4
Foot men and head men, ...			5	5.20	5	3.4
Shaft sinkers, ...			1	1.04	1	0.7
Slate pickers, ...	2	3.9	2	2.07	4	2.7
Total, ...	51	100.0	96	100.0	147	100.0

IMPROVEMENTS MADE IN 1893.

Delaware and Hudson Canal Company.

At the Marvine shaft a new plane was made, 1,430 feet long, area 98 square feet, grade 8 degrees.

At No. 1 shaft, Carbondale, two new air shafts were sunk a distance of 20 feet, which greatly improved the air at the extreme end of the workings.

At Grassy Island a second opening was driven at the extreme end of the plane working from the "Grassy" vein to the surface; length, 275 feet; area, 84 square feet.

Hillside Coal and Iron Company.

At Glenwood three new planes were made, the length of which are 400, 600 and 600 feet, respectively; sectional area of each 84 square feet, on angles of 12, 18 and 19 degrees.

At Erie two new planes were completed, one 150 feet long, with an area of 112 square feet; the other has 98 feet area, and is 175 feet long, on a pitch of 14 degrees.

At Forest City, No. 2 shaft, a new plane, 600 feet long, 6 feet high and 14 feet wide was put in operation.

A new plane, 275 feet long, 14 feet wide and 6 feet high was also put in operation at the Clifford shaft.

Pennsylvania Coal Company.

At Gypsy Grove a new shaft to be used as a second opening was sunk from the surface to the third Dunmore vein a distance of 60 feet; area of shaft, 80 square feet.

Murray Coal Company.

Completed the slope begun in 1892, total length of which is 2,500 feet, with an area of 117 square feet; angle $3\frac{3}{4}$ degrees.

Pancoast Coal Company.

Sunk their hoisting shaft to within a few feet of the Clark vein, making a total depth of 428 feet; size of shaft is 10x34 feet.

They also sunk their man shaft to the bottom split of "G" vein, and intend to continue sinking it until the Clark vein is reached.

Delaware, Lackawanna and Western Railroad Company.

At Storrs, No. 2, a tunnel from the big vein to the Diamond is being driven; length, 444 feet; area, 72 square feet.

At Storrs, No. 3, a new slope 1,450 feet long, having an area of 98 square feet and an angle of 4 degrees was completed and put in operation.

Jones, Simpson & Co. sunk a new air shaft 40 feet deep; area, 100 square feet, which made a much needed improvement in the condition of the ventilation in the drift workings.

A new slope was also sunk by this company a distance of 550 feet on a grade of 8 degrees, with an area of 104 square feet.

The Sterrick Creek Coal Company completed two new planes; length, respectively, 175 and 280 feet, each on a grade of $8\frac{1}{2}$ degrees.

New York and Scranton Coal Company sunk a new air shaft a distance of 250 feet, with an area of 120 square feet.

A new tunnel was also driven by this company from the surface to the Dunmore vein, a distance of 1,000 feet.

The Elk Hill Coal and Iron Company, at Richmond, completed their new plant begun in 1892, including a new breaker, a shaft and slope.

The latter is a second opening, having a depth of 350 feet on a grade of 20 degrees; area, 84 square feet. The shaft is 12x26 feet and 220 feet deep. Two good veins of coal are being opened, one at the bottom of the shaft, the other fifteen feet above. A new fan 14 feet in diameter, 6 feet face, run by an horizontal engine, cylinders 12x24 inches, was also erected.

This company is also sinking their Richmond No. 3 shaft to the Clark vein from the 14-foot, a distance of 150 feet; size, 11x24 feet.

The Blue Ridge Coal Company completed two new slopes, one 300 feet long, the other 210 feet; the area of each is 75 square feet; grade, 15 and 12 degrees respectively.

The Mt. Jessup Coal Company sunk a short air shaft near the face of the workings; depth, 25 feet; area, 60. A new slope, 538 feet long, on a grade of $8\frac{1}{2}$ degrees, was made through old workings, and another slope, 1,038 feet long, with an area of 60 feet is being continued towards the basin.

A tunnel from the surface to the lower Dunmore vein was driven by the Moosic Coal Company. It is 600 feet long, with an area of 72 square feet, and will be used as a water course.

At Carbondale a new breaker was built by the Boyer Coal Company on the foundations of the old Butler breaker; capacity, 200 tons a day.

A new breaker was also built by the Thomas Waddell Coal Company at Winton, Pa.; capacity, 500 tons a day.

Breakers Burned.

Two breakers were burned to the ground during the year. The Moosic Mount Coal Company's at Marshwood, and the Stroud and Chamberlain at Carbondale, neither of which will be rebuilt.

The Moosic Mount coal will hereafter be prepared for market at the Mt. Jessup breaker in Winton, which is being enlarged for this purpose. The coal formerly prepared by the Stroud and Chamberlain breaker will in the future be prepared for market by the new Boyer breaker.

TABLE No. 1—Showing Location of Collieries in the First Anthracite District.

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Postoffice Address.
Leggett's Creek, ...	Delaware and Hudson Canal Company,	First ward, Scranton, ...		
Marvine, ...	do.	do.		
Eddy Creek, ...	do.	Olyphant borough, ...		
Olyphant No. 2, ...	do.	do.		
Grassy Island, ...	do.	do.		
White Oak No. 3 ¹ , ...	do.	Archebald, ...	A. H. Vandling, general superintendent, . .	Scranton, Pa.
White Oak No. 5, ...	do.	do.	Andrew Nicol, general mine superintendent, .	do.
Jermyn No. 1, ...	do.	Jermyn, ...	A. P. Patten, assistant mine superintendent, .	Olyphant, Pa.
Powderly, ...	do.	Carbondale township, ...	A. Simpson, master mechanic, ...	Scranton, Pa.
No. 1 shaft, ...	do.	do.	Chris. Scherar, chief engineer, ...	do.
No. 1 tunnel, ...	do.	Fell township, ...		
Wilson Creek tunnel, ...	do.	do.		
Lackawanna tunnel, ...	do.	Carbondale, ...		
Racket Brook Breaker, ...	do.	do.		
Sinton slope, ...	do.	Fell township, ...		
Storrs No. 3 shaft, ...	do.	Fell township, ...		
Storrs No. 3 shaft, ...	do.	Dickson City, ...	W. R. Storrs, general coal agent, ...	Scranton, Pa.
Storrs tunnel, ...	do.	do.	W. H. Storrs, assistant general coal agent, .	do.
Glenwood, ...	Hillside Coal and Iron Company, ...	Third ward, Scranton, ...	B. Hughes, general mine superintendent, .	do.
Erie, ...	do.	Dickson City, ...	Thos. W. Phillips, assistant minesuperin't, .	do.
Keystone, ...	do.	Mayfield, ...	W. A. Way, general superintendent, ...	do.
Forest City No. 2, ...	do.	do.	William Walker, assistant superintendent, .	Mayfield, Pa.
Forest City slope, ...	do.	do.	J. D. Caryl, assistant superintendent, . . .	Forest City, Pa.
Clifford, ...	do.	do.		
Gypsy Grove No. 1, ...	Pennsylvania Coal Company, ...	Forest City, ...		
Gypsy Grove, ...	do.	do.		
Pancoast, ...	Pancoast Coal Company, ...	Dunmore, ...		
Jermyn No. 3, ...	John Jermyn, ...	Throop, Lackawanna, ...	Montrose Barnard, chief engineer, ...	Scranton, Pa.
Jermyn No. 4, ...	do.	Erieburg, Lackawanna, ...	John B. Smith, general superintendent, . .	Dunmore, Pa.
Edgerton, ...	Edgerton Coal Company, ...	do.	George B. Smith, assistant superintendent, .	do.
Simpson, ...	Northwest Coal Company, ...	Archebald borough, Lackawanna, ...	James Young, general mine superintendent, .	Throop, Pa.
Murray's, ...	Murray, Carney & Brown, ...	Dunmore, ...	Chas. Sanderson, ...	Scranton, Pa.
Riverside, ...	Riverside Coal Company, ...	Peekville, ...	Walter M. Jermyn, ...	
Stierick Creek, ...	Pierick Coal Company, ...	Archebald, ...	J. F. Crawford, ...	do.
Parce, ...	Bleu Ridge Coal Company, ...	Archebald, ...	M. J. Murray, ...	Dunmore, Pa.
Blue Ridge, ...	do.	do.	W. S. Meers, ...	Scranton, Pa.
Mt. Simpson & Co., ...	Jones, Simpson & Co., ...	Archebald, ...	Thos. Sprague, ...	do.
Mt. Jessup, ...	Mt. Jessup Coal Company, ...	Winton, ...	Dacy Morgan, ...	Winton, Pa.
Marshwood, ...	Moosic Mountain Coal Company, ...	Marshwood, ...	J. N. Rice, ...	Peekville, Pa.
Lackawanna, ...	Lackawanna Coal Company, ...	Blakely, ...	Edward S. Jones, ...	Olyphant, Pa.
do.	do.	do.	Ell T. Conner, ...	Winton, Pa.
Ontario, ...	New York and Scranton Coal Company, .	Peekville, ...	Chas. P. Ford, ...	Marshwood, Pa.
Richmond No. 3, ...	Elk Hill Coal and Iron Company, ...	Scranton, ...	O. S. Johnson, ...	Olyphant, Pa.
Richmond No. 4, ...	do.	Richmondale, ...	Evan P. Davis, ...	Scranton, Pa.
S. V. White, ...	Winton Coal Company, ...	Winton borough, ...	W. H. Richmond, ...	Dickson City, Pa.
Dolph, ...	Dolph Coal Company, ...	do.	B. M. Winton, ...	Scranton, Pa.
Franklin, ...	Franklin Coal Company, ...	Fell township, ...	W. G. Robertson, ...	do.
Boyer, ...	Fuller, Boyer, Gilmore & Vipond, ...	Carbondale, ...	Thos. P. Macfarlane, ...	Kingson, Pa.
			Jonathan Vipond, ...	Scranton, Pa.

TABLE NO. 2.—Gives the total number of tons of coal mined in each colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, &c., in the First Anthracite District for the year ending December 31, 1893.

Names of Collieries.	Location.	Total production in tons of coal.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.	Number mine locomotives.
<i>Delaware and Hudson Canal Company.</i>											
Leggett's Creek, ...	Seranton, Pa., ...	226,156.08	203,185.03	224.25	496	..	2	5,128	21	54	..
Marvine, ...	do.	219,632.12	200,148.19	238.25	455	3	2	5,248	21	52	..
Eddy Creek, ...	Olyphant, Pa., ...	225,028.10	217,803.10	220.25	439	2	6	7,422	12	47	..
OLYphant No. 2, ...	do.	156,026.25	131,242.16	215.25	375	1	3	5,045	15	39	..
Grassy Island, ...	do.	203,868.07	186,931.08	222.50	413	2	2	5,509	21	43	..
White Oak, ...	Archbald, Pa., ...	171,121.03	166,091.18	203.75	430	..	1	3,732	6	43	1
Jenny Oak, No. 1, ...	Jermyan, Pa., ...	249,283.11	228,312.19	213.75	579	4	3	5,041	19	37	..
Powderly, ...	Carbondale township, ...	126,576.00	79,806.00	202.75	287	0	..	4,346	9	33	..
No. 3 Shaft, ...	Carbondale, ...	95,894.00	60,839.19	202.75	265	1	..	2,773	5	44	..
No. 3 Shaft, ...	do.	40,892.00	19,706.00	176.00	168	..	..	1,505	12	16	..
Coal Brook, ...	Fell township, ...	68,610.00	59,434.00	212.75	392	..	..	2,111	7	40	1
Clinton, ...	Carbondale township, ...	146,128.75	122,464.18	215.50	285	..	1	5,748	6	37	..
Racket Brook, ...	Fell township, ...	..	*171,484.00	216.50	70	..	..	..	5	4	..
Wilson Creek, ...	..	202,253.75	175,212.10	212.75	273	..	..	6,151	2	32	..
Totals and averages, ...	..	2,132,469.26	2,022,718.40	213.07	4,917	13	20	59,747	161	521	3
<i>Hillside Coal and Iron Company.</i>											
Glenwood, ...	Mayfield, Pa., ...	195,074.15	179,620.13	174.25	511	1	1	6,271	19	40	..
Erie, ...	do.	198,180.00	182,234.11	213.50	527	..	3	6,294	24	43	1
Keystone, ...	do.	69,985.19	68,889.19	174.50	201	1	..	1,525	2	28	..
Forest City, ...	Forest City, Pa., ...	*315,728.00	210,064.05	203.50	613	7	4	11,823	20	33	4
Clifford, ...	do.	156,228.19	†221,014.07	139.50	402	1	2	6,608	9	..	..
Totals and averages, ...	..	935,195.62	862,417.55	139.45	2,284	10	10	32,521	74	193	6

* This coal mined at Powderly slope, Nos. 1 and 3 shafts.

† Of the total amount mined at Forest City shaft 75,395.08 tons were sent to Clifford breaker.

‡ In the tonnage shipped to market 75,395.08 tons were mined at Forest City shaft.

TABLE No. 2—Continued.

Names of Collieries.	Location.	Total production in tons of coal.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.	Number mine locomotives.
<i>Pennsylvania Coal Company.</i>											
Gypsy Grove, ...	Dunmore, Pa., ...	122,044	120,643	196.50	355	1	1	4,822	10	34	1
Gypsy Grove No. 1, ...	do.	97,397	94,400	135.50	273	1	3	4,681	17	27	1
Totals and averages, ...		220,041	215,103	196	628	1	3	9,513	27	61	1
<i>John Jermyn.</i>											
Jermyn No. 3, ...	Priebeburgh, ...	148,039.18	148,039.18	185	391	2	2	5,307	12	33	1
Jermyn No. 4, ...	do.	80,477.13	78,767.01	178.9	279	1	1	3,492	21	27	1
Totals and averages, ...		228,516.31	226,806.19	181.95	670	3	3	9,239	33	60	1
<i>Delaware, Lackawanna and Western R. R. Co.</i>											
Storrs, ...	Dickson City, ...	399,519.06	382,134.16	193.6	886	4	2	12,941	20	104	3
<i>Elk Hill Coal and Iron Company.</i>											
Richmond No. 3, ...	Seranton, ...	121,275	110,125	222.2	212	1	1	2,475	9	14	1
Richmond No. 4, ...	Richmondale, ...	4,131	4,031	55	104	1	2	200	4	8	1
Totals and averages, ...		125,406	114,156	138.6	316	1	3	2,675	13	22	1
<i>Miscellaneous Companies.</i>											
Lackawanna, ...	Blakely, ...	333,565.13	329,344.09	275.1	584	2	11	8,769	24	59	1
John Simpson & Co., ...	Archbald, ...	290,405.10	259,435.10	206.75	799	2	2	9,071	20	49	1
Simpson, ...	Pell township, ...	290,729.00	244,800.14	223.80	426	1	1	8,946	22	80	1
Edgerton, ...	Archbald boro., ...	238,933.10	274,844.15	195.00	428	4	4	1,178	18	53	1
Ontario, ...	Peekville, ...	209,086.00	200,163.00	223.00	507	1	6	10,790	21	49	1
Pancoat, ...	Throop, ...	200,757.12	198,494.18	205.50	368	1	1	1,326	19	29	1
Riverside, ...	Archbald, ...	97,752.07	95,727.07	225.30	439	3	2	4,530	13	33	1
Blue Ridge, ...	Archbald boro., ...	123,035.35	131,025.35	205.30	429	1	3	6,150	16	36	1
Dolph, ...	Winton boro., ...	103,804.05	101,388.00	174.5	313	1	3	4,513	17	40	1
Mt. Jessup, ...	do.	99,827.01	91,800.12	228.25	233	3	3	2,652	9	22	1
Marshwood, ...	Marshwood, ...	55,369.16	50,506.06	172.40	122	1	3	2,652	17	22	1
Stierick Creek, ...	Peekville, ...	82,548.00	81,486.00	172.40	440	1	3	4,879	18	39	1

S. V. White, ...	Winton boro.	33,881.00	33,420.00	180.60	132	...	1	4,288	6	36	1
Turray's, ...	Dunmore, ...	32,337	28,727	228.25	66	...	1	1,560	5	13	..
Piercy, ...	Winton, ...	25,340	27,038	80.7	152	...	1	737	11	19	1
Farrell, ...	Full township, ...	625	600	10	56	...	...	23	1	3	...
Over*, ...	Carbondale, ...	*	...	...	...	...	...	...	...	...	...
Totals of miscellaneous companies.	...	2,160,984.09	2,091,338.25	184.31	5,936	19	56	83,948	206	530	18

* No coal produced in 1883.

Recapitulation of Table No. 2.

Delaware and Hudson Canal Company, ...	Seranton, Pa., ...	2,132,469.25	2,022,718.40	213.07	4,917	13	20	99,747	161	521	3
Hillside Coal and Iron Company, ...	do.	935,195.62	862,417.55	193.45	2,284	10	10	32,521	74	193	6
Pennsylvania Coal Company, ...	Dunmore, ...	230,041.00	215,103.00	196	628	1	3	9,513	27	63	1
John Jernyn, ...	Seranton, Pa., ...	228,516.31	226,806.19	181.95	670	3	2	9,239	33	60	...
Elk Hill Coal and Iron Company, ...	Dickson City, ...	135,406.00	114,156.00	138.60	316	1	3	2,675	13	22	1
Delaware, Lackawanna and Western Railroad Co., ...	Seranton, Pa., ...	399,519.06	382,134.16	193.6	886	4	2	12,941	20	104	3
Miscellaneous companies, ...	Lackawanna county, ...	2,160,984.09	2,091,338.25	189.31	5,936	19	56	83,948	206	530	18
Grand totals and averages, ...	...	6,202,131.34	5,914,673.56	196.4	15,637	51	96	210,584	534	1,491	32

TABLE NO. 3.—Showing the number of each class of employes at each colliery in the First Anthracite District during the year 1893.

Names of Collieries.	Occupation of Persons Employed Inside.							Occupation of Persons Employed Outside.							Grand total inside and out- side.
	Inside foreman.	Miners.	Miners' laborers.	All company men.	Drivers and runners.	Door boys and helpers.	Total inside.	Outside foremen.	Blacksmiths and car- penters.	Engineers and fire- men.	State pickers.	All other company men.	Superintend'ts, book- keepers and clerks.	Total outside.	
<i>Delaware and Hudson Canal Company.</i>															
Leggett's Creek, ...	1	110	110	48	73	24	367	1	5	9	63	51	...	129	496
Marvine, ...	1	109	99	32	82	20	343	1	5	6	48	52	...	112	455
Eddy Creek, ...	1	122	117	45	52	20	359	1	5	8	51	35	...	100	459
Olyphant No. 2, ...	1	97	94	27	47	14	280	1	4	11	44	30	2	92	372
Grassy Island, ...	1	124	100	26	40	5	296	4	4	12	55	45	...	117	413
White Oak, ...	2	122	99	36	41	6	286	2	5	4	64	68	...	144	430
Fernyn No. 1, ...	1	198	169	31	45	24	468	1	2	9	45	49	2	111	572
Powderly, ...	1	168	168	38	43	12	251	1	2	4	5	23	1	36	287
No. 1 shaft, ...	1	135	25	35	14	7	219	1	4	3	6	31	1	46	265
No. 3 shaft, ...	1	46	26	35	24	4	135	1	1	4	6	20	...	32	168
Coal Brook, ...	1	79	30	33	15	4	162	1	5	8	100	84	2	200	362
Clinton, ...	1	64	64	36	22	12	199	1	3	4	37	41	...	86	285
Racket Brook,*	...	...	66	37	23	...	...	1	...	2	34	32	1	70	70
Wilson Creek,†	1	132	66	37	23	13	273	...	...	...	...	...	...	...	273
Total, ...	18	1,507	1,007	440	502	165	3,639	14	48	84	558	561	10	1,275	4,914
<i>Hillside Coal and Iron Company.</i>															
Glenwood, ...	2	126	106	43	65	16	359	1	5	14	82	48	2	152	511
Orin, ...	2	131	131	56	59	18	394	1	6	11	53	58	4	133	527
Keystone, ...	1	45	50	6	34	1	137	1	2	3	36	22	1	64	201
Forest City, ...	2	218	218	37	45	9	529	1	6	11	36	55	5	114	643
Clifford, ...	1	130	130	15	30	4	277	1	4	8	58	51	3	125	402
Totals, ...	8	650	602	154	234	48	1,696	5	23	46	265	234	15	588	2,284
<i>Delaware, Lackawanna and Western Railroad Company.</i>															
Storrs Nos. 1 and 2, ...	2	172	172	59	80	20	505	1	21	13	87	73	...	195	700
Storrs No. 3, ...	1	57	62	28	21	4	173	...	5	4	...	3	1	13	186
Totals, ...	3	229	234	87	101	24	678	1	26	17	87	76	1	208	886

Pennsylvania Coal Company.

Gypsy Grove, ...	1	118	107	10	31	10	277	1	2	7	33	35	78	555
Gypsy Grove No. 1, ...	2	215	157	20	55	14	463	2	4	18	83	23	87	273
Totals, ...													165	628
<i>John Jermyn.</i>														
Jermyn No. 3, ...	1	106	106	26	60	5	304	1	4	6	53	21	2	87
Jermyn No. 4, ...	1	66	66	29	43	2	207	1	4	9	28	28	2	279
Totals, ...														670
<i>Elk Hill Coal and Iron Company.</i>														
Richmond No. 3, ...	3	44	44	10	15	3	119	1	5	6	48	30	3	93
Richmond No. 4, ...	1	28	28	8	3	7	75	1	3	6	18	11	1	29
Totals, ...														104
<i>Miscellaneous Coal Companies.</i>														
Murray, Carney & Brown, ...	2	15	16	5	9	1	48	1	1	3	6	7	18	66
North West Coal Company, ...	2	130	83	16	54	12	322	1	12	12	45	30	4	104
Ridgerton Coal Company, ...	3	125	120	14	33	10	305	2	5	6	70	35	5	428
Pancoast Coal Company, ...	2	140	140	43	71	22	418	1	7	12	70	57	3	150
Parkerside Coal Company, ...	2	111	111	24	36	10	294	2	4	4	80	43	2	135
Pleura Coal Company, ...	2	165	165	27	51	8	278	1	6	9	102	62	2	182
Blue Ridge Coal Company, ...	3	131	130	16	30	4	396	1	3	6	25	20	1	56
Jones, Simmon & Co., ...	2	374	206	31	63	25	701	1	8	14	56	12	2	123
Monit Jessup Coal Company, ...	1	67	62	27	17	2	176	3	6	9	71	35	2	187
Lackawanna Coal Company, ...	1	150	150	45	89	15	450	1	7	13	90	27	6	191
Moosic Mountain Coal Company, ...	1	38	38	6	24	4	113	1	4	4	55	33	3	119
New York and Scranton Coal Company, ...	2	129	137	28	49	7	352	1	10	14	95	83	2	155
Dolph Coal Company, ...	2	31	34	12	10	4	89	3	5	2	22	9	2	43
Franklin Coal Company, ...	1	12	12	1	6	1	32	1	1	1	96	37	2	450
Totals, ...														56
Totals, ...	28	1,703	1,501	315	579	129	4,255	23	89	125	931	472	41	1,681
														5,966

* Coal mined at Nos. 1 and 3 shafts and Powderly slope. † Coal prepared at Coal Brook breaker.

Recapitulation of Table No. 3.

Delaware and Hudson Canal Company, ...	18	1,507	1,007	440	502	165	3,639	14	48	84	558	551	10	1,275	4,914
Hillsdale Coal and Iron Company, ...	8	650	602	154	234	48	1,696	5	23	46	265	234	15	588	2,284
Pennsylvania Coal Company, ...	2	215	157	20	55	14	463	2	4	18	83	23	4	165	628
John Jermyn, ...	2	172	172	53	103	7	511	2	8	15	81	49	4	139	670
Elk Hill Coal and Iron Company, ...	4	72	72	18	18	10	194	2	8	12	66	30	4	122	316
Delaware, Lackawanna and Western Railroad Company, ...	3	292	234	87	101	24	378	1	26	17	87	46	1	208	836
Miscellaneous coal companies, ...	28	1,703	1,501	315	579	129	4,235	23	89	125	931	472	41	1,681	5,966
Grand totals, ...	65	4,548	3,745	1,089	1,592	397	11,436	49	206	317	2,071	1,480	75	4,198	15,634

TABLE IV—List of Fatal Accidents which occurred in the Mines of the First Anthracite District for the year ending December 31, 1893.

Date of accident.	No. of accident.	Name of Person.	Occupation.	Age.	Widows.	No. of orphans.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 4,	1	Barnard Eagan, ...	Laborer, ...	26	..	..	Edgerton, ...	Edgerton, Lackawanna co.,	Instantly killed by coal flying from a shot.
4,	2	John Munley, ...	Miner, ...	29	..	..	Parcoast, ...	Throop, Lackawanna co.,	Instantly killed by fall of top coal.
6,	3	Peter Gibbs, ...	Laborer, ...	36	1	2	Clifford, ...	Forest City, Susquehanna co.,	Caught between car and "rib" and fatally squeezed. Died on the 10th of same month.
7,	4	Thomas Daniels, ...	Miner, ...	29	1	3	Lackawanna, ...	Blakely, Lackawanna co.,	Instantly killed by a fall of roof.
10,	5	John Moteski, ...	Laborer, ...	40	..	..	Storrs shaft, ...	Dickson City, Lackawanna co.,	Struck by a descending carriage while trying to cross the shaft.
25,	6	Andrew Matsko, ...	Laborer, ...	34	1	4	Forest City, ...	Forest City, Susquehanna co.,	Instantly killed by a falling sulphur ball.
Feb. 1,	7	Joseph Blaharsky, ...	Laborer, ...	34	1	3	Jermyn, No. 1, ...	Jermyn, Lackawanna co.,	Instantly killed by a fall of roof.
2,	8	John Denvers, ...	Miner, ...	35	..	..	Storrs, No. 2, ...	Dickson City, Lackawanna co.,	Fatally injured by a fall of roof. Died next day.
4,	9	William Nicholas, ...	Miner, ...	46	1	4	Jermyn, No. 1, ...	Jermyn, Lackawanna co.,	Killed by a fall of top coal while chopping out a prop, which he had been forbidden to do by the foreman a few minutes previously.
7,	10	James Coggins, ...	Miner, ...	56	1	4	Olyphant, No. 2, ...	Olyphant, Lackawanna co.,	Instantly killed by a fall of rock while trying to remove a prop which had been placed too near the track.
13,	11	Benjamin Thomas, ...	Door boy, ...	14	..	..	Blue Ridge, ...	Peekville, Lackawanna co.,	Fatally injured by being squeezed between a car and the frame around it.
27,	12	Peter Haley, ...	Slate picker, ...	13	..	..	Dolph, ...	Peekville, Lackawanna co.,	Instantly killed by being squeezed between screen and the frame around it.
March 2,	13	George Kusnee, ...	Laborer, ...	21	..	..	Jermyn, No. 1, ...	Jermyn, Lackawanna co.,	Instantly killed by a fall of top coal.
9,	14	Joseph Swansick, ...	Miner, ...	32	1	4	Edgerton, ...	Edgerton, Lackawanna co.,	Instantly killed by a fall of top coal.
23,	15	Joseph Shnyder, ...	Miner, ...	36	1	..	Marshwood, ...	Marshwood, Lackawanna co.,	Instantly killed by a fall of top rock.
24,	16	Gearn Paulich, ...	Laborer, ...	35	1	2	Glenwood, ...	Mayfield, Lackawanna co.,	Fatally injured by falling from first to second lift of shaft.
April 11,	17	Anthony McHale, ...	Runner, ...	15	..	..	No. 1 slope, ...	Carbondale, Lackawanna co.,	Killed by being run over by cars.
14,	18	John Jolionisky, ...	Laborer, ...	38	1	2	Forest City shaft, ...	Forest City, Lackawanna co.,	Instantly killed; run over by cars.
24,	19	Patrick O. Horro, ...	Miner, ...	45	1	7	No. 1 shaft, ...	Dunmore, Lackawanna co.,	Instantly killed by a fall of rock.
26,	20	Carry Labusky, ...	Laborer, ...	25	..	..	Edgerton, ...	Jermyn, Lackawanna co.,	Instantly killed by a fall of rock.
May 8,	21	John Kiley, ...	Laborer, ...	56	1	6	Marvine, ...	Scranton, 1st ward, ...	Fatally injured; squeezed between cars and pillar. Died seven days after.

11.	22	Lewis Dombrosky, ...	Miner, ...	35	1	Storrs No. 1, ...	Dickson City, ...	Fatally burned by explosion of gas. Died May 13th.
13.	23	Joseph Telawiska, ...	Laborer, ...	25	..	Richmond, No. 3, ...	Scranton, 1st ward, ...	Instantly killed by fall of top coal.
15.	24	Patrick Donahvie, ...	Miner, ...	35	1	Marine, ...	Scranton, 1st ward, ...	Instantly killed by fall of top coal.
24.	25	Patrick Hennigan, ...	Door tender, ...	14	..	Keystone, ...	Mayfield, ...	Instantly killed; struck by a trip of loaded cars while riding up a plane.
24.	26	Michael Schlegel, ...	Miner, ...	31	1	Forest City slope, ...	Forest City, ...	Fatally injured by fall of rock or "bell."
27.	27	Michael Gorion, ...	Laborer, ...	40	..	Grassy Island, ...	Olyphant, ...	Died in three hours after being squeezed between car and pillar. Died in one hour after accident.
June 2.	28	Frank Zinkus, ...	Laborer, ...	28	..	Simpson, ...	Carbondale, ...	Instantly killed by fall of top coal.
8.	29	Thomas Brown, ...	Miner, ...	35	1	Marine, ...	Scranton, 1st ward, ...	Instantly killed by fall of top rock.
20.	30	Michael Holinda, ...	Laborer, ...	18	..	Eddy Creek, ...	Olyphant, ...	Fatally injured by fall of roof. Died on June 26.
July 20.	31	George Pisoco, ...	Miner, ...	35	1	Forest City slope, ...	Forest City, Susquehanna co., ...	Instantly killed by a fall of rock at the face of his chamber.
26.	32	William Davis, ...	Laborer, ...	18	..	Ontario, ...	Peckville, Lackawanna co., ...	Fatally injured by a kick from a mule.
28.	33	Peter Meehan, ...	Laborer, ...	24	..	Jermyn, No. 4, ...	Priceburgh, Lackawanna co., ...	Instantly killed by a fall of rock on gangway.
Aug. 2.	34	Patrick Kelly, ...	Miner, ...	52	1	Eddy Creek, ...	Olyphant, Lackawanna co., ...	Instantly killed by a fall of rock, shaped rock.
9.	35	Michael Gerrity, ...	Miner, ...	47	1	Mt. Jessup, ...	Winton borough, ...	Fatally injured by a fall of rock, "bell" shaped rock from roof. Died on the following day, by being squeezed between the pillar and cars.
21.	36	Anthony Dobish, ...	Driver, ...	19	..	Forest City, No. 2, ...	Forest City, ...	Instantly killed by a kick from a mule.
Sept. 15.	37	John Shelnisky, ...	Miner, ...	42	1	Lackawanna, ...	Olyphant, ...	Instantly killed by a fall of rock, "bell" shaped rock from roof. Died on the following day, by being squeezed between the pillar and cars.
19.	38	John Rink, ...	Miner, ...	28	..	Mt. Jessup, ...	Winton borough, ...	Fatally injured by a blast which blew through the pillar.
Oct. 4.	39	Michael Kearney, ...	Driver, ...	18	..	Jones, Simpson & Co., ...	Archbald, ...	Instantly killed by a falling "bell" rock.
9.	40	Stephen Sakel, ...	Track man, ...	28	..	Forest City, No. 2, ...	Forest City, ...	Instantly killed; struck by runaway car.
1.	41	Omie McCauley, ...	Laborer, ...	21	..	Jones, Simpson & Co., ...	Archbald, ...	Instantly killed by a falling "bell" rock.
13.	42	Anthony Solosky, ...	Driver, ...	18	..	Jermyn, No. 3, ...	Priceburgh, ...	Instantly killed by a falling "bell" rock.
26.	43	Andrew Seso, ...	Laborer, ...	25	..	Simpson, No. 2, ...	Dickson City, ...	Instantly killed by a falling "bell" rock.
Nov. 11.	44	Andrew Nauza, ...	Laborer, ...	25	..	Jermyn, No. 3, ...	Priceburgh, ...	Instantly killed by a fall of top coal.
23.	45	Joseph Smith, ...	Miner, ...	45	1	Jermyn, No. 1, ...	Jermyn, Pa., ...	Instantly killed by a fall of coal at face of chamber.
Dec. 1.	46	John Barnock, ...	Laborer, ...	32	1	Edgerton, ...	Carbondale, ...	Fatally injured by a fall of "bell" shaped rock. Died on the following day.
2.	47	Daniel Gammon, ...	Runner, ...	19	..	Blue Ridge, ...	Peckville, ...	Leg fractured by a fall of rock. Died on the 13th of December from blood poisoning.
7.	48	Anthony Grimes, ...	Laborer, ...	24	..	Grassy Island, ...	Olyphant, ...	Instantly killed by a falling "bell" at face of ganaway.
8.	49	John Zodariski, ...	Laborer, ...	37	..	Mt. Jessup, ...	Winton, ...	Instantly killed by falling into culm hopper, and thence into the chute.
15	50	Arja Davis, ...	Slate picker, ...	14	..	Blue Ridge, ...	Peckville, ...	Fatally squeezed between the top of the chute on a box car and the chute stringers.
18.	51	Walter McAvoy, ...	Loader, ...	26	1	Forest City, ...	Forest City, ...	

TABLE 5.—*List of Non-fatal Accidents Occurring in the Mines of the First Anthracite District for the Year Ending December 31, 1893.*

Date of accident.	No. of accident.	Name of Person.	Occupation.	Age.	Name of Colliery.	Location—County.	Nature and Cause of Accidents.
Jan. 4.	1	Michael McDonough.	Miner.	35	Edgerton.	Edgerton, Lackawanna co.,	Bruised by coal flying from a shot.
4.	2	John Sunday.	Driver.	14	Forest City.	Forest City, Susquehanna co.,	Foot injured between latch and rail.
7.	3	Richard Alsop.	Runner.	20	Lackawanna.	Blakely, Lackawanna county,	Injured internally, by fall of roof.
10.	4	Gasper Colismo.	Laborer.	26	No. 1 shaft.	Dunmore, Lackawanna co.,	Seriously burned on hands and face by an explosion of powder.
27.	5	Dennis Walker.	Miner.	43	Panocast.	Throop, Lackawanna county,	Back broken by a descending carriage. He tried to cross the cartage pit to the opposite side of shaft, but was caught in the act by the carriage.
27.	6	F. G. Pilger.	do.	47	do.	do.	Badly injured on face and body by premature explosion of a blast.
Feb. 15.	7	Patrick Fallon.	Laborer.	17	do.	do.	Arm injured by falling under culm car.
17.	8	Henry Gissard.	do.	21	do.	do.	Severely cut on head and shoulders by a fall of coal.
24.	9	Anthony Bgal.	Miner.	24	Clifford.	Forest City, Susquehanna co.,	Severely cut on head by a fall of rock.
24.	10	Lawrence Brady.	Laborer.	32	Riverside.	Winton, Lackawanna county,	Seriously injured on body by a fall of rock.
24.	11	Isaac Griffith.	Driver.	15	Lackawanna.	Blakely, Lackawanna county,	Leg caught in track by car jumping off truck.
Mar. 2.	12	John Mosley.	Laborer.	35	Jermyn No. 1.	Jermyn, Lackawanna county,	Injured by fall of top coal.
4.	13	Edward Deacken.	Miner.	43	Leggett's Creek.	Seranton, Lackawanna co.,	Leg broken by a fall of top coal.
4.	14	Henry Barrett.	Driver.	17	Storrs.	Dickson City, Lackawanna co.,	Body injured; squeezed between cars.
10.	15	David Thomas.	Miner.	38	Ontario.	Pekville, Lackawanna co.,	Slightly injured by fall of rock.
11.	16	Arthur Davis.	Driver.	16	Leggett's Creek.	Seranton, Lackawanna co.,	Leg broken by a mule falling on him.
14.	17	John Velagli.	Laborer.	26	Forest City.	Forest City, Susquehanna co.,	Severely bruised by a fall of top slate.
16.	18	John N. Wilson.	Runner.	27	Lackawanna.	Blakely, Lackawanna county.	Leg fractured; caught by car that jumped the track.
20.	19	Charles Ashmand.	Driver.	14	Bddy Creek.	Olyphant, Lackawanna co.,	Arm broken; run over by car.
25.	20	John McGovern.	Doortender.	14	Jermyn No. 1.	Jermyn, Lackawanna county,	Severely injured by being squeezed between car and chutes.
25.	21	James Byrne.	Driver.	14	Sterrick Creek.	Pekville, Lackawanna co.,	Leg broken; squeezed between car and rib.
28.	22	John Schelzene.	do.	39	Blue Ridge.	do.	Severely injured; squeezed between two cars.
28.	23	John P. Ross.	Miner.	26	Marshwood.	do.	Back injured by fall of coal.
28.	24	Griffith Reese.	Driver.	15	Jones, Simpson & Co.	Archbald, Lackawanna co.,	Severely injured by a piece of strap iron passing through his leg, near the hip.
Apr. 8.	25	Joseph Sallinsky.	do.	14	Bddy Creek.	Olyphant, Lackawanna co.,	Small bone of leg broken by flying coal.
10.	26	Emmerick Subolo.	Laborer.	40	Panocast.	Blakely, Lackawanna county,	Severely bruised by falling down shaft.
12.	27	Thomas Conyard.	Miner.	38	Lackawanna.	Blakely, Lackawanna county,	Arm and rib fractured by fall of coal.
15.	28	John Lenahan.	do.	43	Panocast.	Throop, Lackawanna county,	Back severely injured by fall of top coal.
17.	29	Charles Woods.	Footman.	20	Blue Ridge.	Pekville, Lackawanna co.,	Back badly injured by falling under a truck.
19.	30	Joseph Connelly.	Miner.	35	Panocast.	Throop, Lackawanna county,	Severely bruised by flying coal from a shot.

23,	31	John Salona, ...	Miner, ...	28	Marshwood, ...	Marshwood, Lackawanna co.,	Face badly injured. He was firing a hole in top rock. After putting fire to the fuse he ran away a short distance, but thinking the fuse was hanging fire, he went back and began to blow upon it to hasten its burning, and while doing so the blast exploded with above result.
28,	32	James Rayeshach, ...	do.	23	Blue Ridge, ...	Peckville, ...	Leg broken by a fall of top coal.
29,	23	George Shell, ...	do.	60	Lackawanna, ...	Blakely, ...	Arm dislocated and bruised on body by fall of coal.
30,	34	Frank Samansky, ...	Footman, ...	33	Marshwood, ...	Marshwood, ...	Leg fractured by flying coal from runaway cars on slope.
19,	35	John Graey, ...	Miner, ...	57	Jermyn No. 3, ...	Priceburgh, ...	Ribs broken by fall of roof.
26,	36	Philip Hastings, ...	do.	35	No. 1 shaft, ...	Dunmore, ...	Leg severely bruised by fall of roof.
5,	37	John Markey, ...	do.	78	Marvline, ...	Seranton City, ...	Leg broken in three places by fall of coal.
7,	38	Martin T. Brennan, ...	Slate picker, ...	16	Simpson, ...	Carbondale, ...	Arm crushed between two cogs; amputation near shoulder necessary.
8,	39	Frank Berger, ...	Laborer, ...	21	Lackawanna, ...	Blakely, ...	Foot crushed by car passing over it.
8,	40	George Zelunok, ...	do.	40	Ontario, ...	Peckville, ...	Bruised on head by fall of coal from blast.
16,	41	Patrick Flynn, ...	Miner, ...	33	Erie, ...	Peckville, ...	Arm crushed by fall of rock.
20,	42	Frank Hannon, ...	Laborer, ...	30	Pancoast, ...	Throop, ...	Bruised on body by fall of "bell" from roof.
20,	43	Martin Babi, ...	Miner, ...	33	Erie, ...	Mayfield, ...	Leg badly cut by flying coal from shot that blew through pillar.
20,	44	Frank Rogosky, ...	Laborer, ...	40	do.	do.	Leg fractured near hip by flying coal from a shot which blew through pillar.
23,	45	Frank Gontofski, ...	do.	32	Pancoast, ...	Throop, ...	Foot injured on head by flying coal from a shot.
26,	46	John Honeychuck, ...	Miner, ...	35	Lackawanna, ...	Blakely, ...	Body and back bruised by fall of roof.
4,	47	Lawrence Sependor, ...	Driver, ...	16	Clifford, ...	Forest City, ...	Three toes amputated by car passing over them.
7,	48	Lawrence Commons, ...	Slate picker, ...	16	White Oak, ...	Archbald, ...	Leg crushed by car running over it; leg was afterward amputated.
7,	49	Thomas Buckingham, ...	Footman, ...	16	Glenwood, ...	Mayfield, ...	Foot crushed so badly that amputation was necessary. He was walking on the plane rope while in motion, and was caught between the sheane and rope.
10,	50	Frank Pellow, ...	do.	21	Jermyn No. 1, ...	Jermyn, ...	Foot badly crushed by carriage coming down upon it.
11,	51	Ladin Climsce, ...	Laborer, ...	26	Eddy Creek, ...	Olyphant, ...	Leg broken by being squeezed between car and prop.
13,	52	Michael Slinuock, ...	Miner, ...	36	Ontario, ...	Peckville, ...	Severely burned on face and hands by an explosion of powder, while sitting at his box.
14,	53	Edward Lee, ...	Driver, ...	17	Marvline, ...	Seranton, First Ward, ...	Leg broken, and otherwise seriously injured by a runaway caused by falling under a trip of loaded cars.
15,	54	George Lake, ...	do.	14	Grassy Island, ...	Olyphant, ...	Severely bruised by a fall of rock.
19,	55	Cathbert Kelti, ...	Laborer, ...	48	Richmond, No. 3, ...	First ward, Seranton, ...	Badly cut on leg by flying coal from a shot.
20,	56	Givento Gundlara, ...	Miner, ...	28	Blue Ridge, ...	Peckville, ...	Collar bone fractured and badly bruised by being struck and run over by empty cars.
21,	57	John Drake, ...	do.	23	Dolph, ...	Winton borough, ...	Both legs fractured; struck by an empty car which jumped the track near his door.
25,	58	Patrick Cawley, ...	Door boy, ...	14	Riverside, ...	Winton, ...	Leg severely bruised and cut by falling under a trip of loaded cars.
26,	59	Thomas McDonell, ...	Driver, ...	15	Murrays, ...	Dunmore, ...	While making up a cartridge of powder with his lamp on his head, a spark from the lamp fell into the powder, causing it to explode and burning him severely.
Aug. 2,	60	John Knuckey, ...	Miner, ...	48	Olyphant, No. 2, ...	Olyphant, ...	Injured on body by a fall of rock.
2,	61	Michael Kelley, ...	Laborer, ...	17	Eddy Creek, ...	do.	Leg fractured by a fall of coal.
23,	62	Thomas Ryan, ...	do.	45	Dolph, ...	Winton borough, ...	Back and hips injured by fall of rock.
26,	63	Thomas Hewitt, ...	do.	20	Storr's No. 3, ...	Dickson City, ...	Skull fractured by an iron bolt falling from tower into shaft where he was at work.
28,	64	Dennis Quigly, ...	Shaft sinker, ...	43	Richmondale, ...	Fell township, ...	Arm fractured by a kick from a mule.
Sept. 1,	65	Thomas McHale, ...	Driver, ...	17	Olyphant, No. 2, ...	Olyphant, ...	

TABLE No. 5—Continued.

Date of Accident.	No. of Accident.	Name of Person.	Occupation.	Age.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
5.	66	Joseph Goblinsky, ...	Laborer, ...	28	Lackawanna, ...	Olyphant, ...	Foot severely injured by a fall of rock.
6.	67	Jacob Lynch, ...	Miner, ...	52	Forest City, No. 2, ...	Forest City, ...	Head severely cut by a fall of roof.
18,	68	John Lydolph, ...	Laborer, ...	66	Gypsy Grove, No. 1, ...	Dunmore, ...	Hip dislocated by a car jumping off the track and striking him.
19,	69	Edward Jones, ...	do.	36	Eddy Creek, ...	Olyphant, ...	Hip dislocated and rib fractured by a fall of slab rock from roof.
23,	70	George Reese, ...	Miner, ...	36	do.	do.	Hand badly crushed by a fall of bony coal.
26,	71	Acorn Fehringier, ...	Door boy, ...	15	Pancoast, ...	Throop, ...	Arm and leg fractured; squeezed between cars.
26,	72	John Chelney, ...	Miner, ...	49	Lackawanna, ...	Olyphant, ...	Back severely injured by a prop falling on it.
29,	73	James Kenney, ...	do.	22	Sterrick Creek, ...	Pekville, ...	Severely burned by an explosion of powder.
29,	74	Edward Jenkins, ...	Laborer, ...	23	do.	do.	Severely burned by an explosion of powder.
Oct.	75	Patrick Gibbons, ...	Driver, ...	18	Olyphant, No. 2, ...	Olyphant, ...	Shin cut by a kick from a mule.
7,	76	Richard Roberts, ...	Laborer, ...	64	Sterrick Creek, ...	Pekville, ...	Shin taken off by a car running over it.
16,	77	Thomas Rochett, ...	do.	50	Jones, Simpson & Co.	Archibald, ...	Leg fractured and back severely injured by a fall of coal.
16,	78	James Mills, ...	Miner, ...	39	Sturges, ...	Pekville, ...	Seriously cut on face and body by flying coal from a blast.
16,	79	Charles Carlisky, ...	do.	38	do.	do.	Seriously injured by premature blast.
24,	80	Matthew Grimes, ...	do.	38	Blue Ridge, ...	do.	Seriously injured by fall of rock.
26,	81	Hugh Itley, ...	do.	28	Clinton, ...	do.	Jaw bone fractured by flying rock from a blast.
28,	82	Arthur Curtis, ...	Driver, ...	16	Edgerton, ...	Vandling, ...	Skull fractured by a kick from a mule.
30,	83	Daniel Owens, ...	Miner, ...	18	Lackawanna, ...	Jermyn, ...	Severely bruised on body by a fall of coal.
Nov.	84	Elmer Davis, ...	Driver, ...	48	Blue Ridge, ...	Olyphant, ...	Leg fractured by being run over by cars.
10,	85	John Hobman, ...	Laborer, ...	20	Winton, ...	Pekville, ...	Severely injured by flying coal from a blast.
15,	86	William Wilson, ...	Miner, ...	48	Pancoast, ...	Winton borough, ...	Badly injured on head and breast by a fall of top coal while mining out the bottom bench.
16,	87	Frank Poore, ...	Laborer, ...	30	do.	do.	Severely injured by a fall of top coal.
22,	88	George Kridler, ...	do.	25	Sterrick Creek, ...	Pekville, ...	Leg broken below the knee by a fall of rock.
22,	89	George Kridler, ...	do.	45	Dolph, ...	do.	Badly injured on body by a fall of rock.
24,	90	Thomas Burdus, ...	do.	23	Ontario, ...	do.	Face severely burned by a premature explosion of a blast.
25,	91	John W. Jenkins, ...	do.	27	Lackawanna, ...	Blakely, ...	Leg fractured and otherwise severely cut by a rush of coal from a breast on to the platform where he was standing; caused by battery props giving way.
Dec. 7,	92	Harvey Sergeant, ...	Driver, ...	18	Pancoast, ...	Throop, ...	Arm fractured near the shoulder by being run over by a car.
8,	93	George Goodboy, ...	Headman, ...	26	Jermyn, No. 3, ...	Priesburgh, ...	Arm fractured by being squeezed between two cars.
12,	94	Stephen Semerolt, ...	Laborer, ...	30	Grassy Island, ...	Olyphant, ...	Leg fractured by a fall of roof.
13,	95	Walter Burdick, ...	Miner, ...	20	Richmondale, ...	do.	Face badly cut by a premature explosion of a blast.
18,	96	John Gibus, ...	Laborer, ...	20	Forest City, No. 2, ...	Forest City, ...	Leg fractured by a fall of rock.

TABLE A—Showing the Quantity of Air Circulating through the Mines of the First Anthracite District at the end of the Year 1893.

Name of Mine.	Name of Operator.	Number of Fans.	Number of persons employed in air currents.	Number of separate air currents.	Number of cubic feet of air in inlet.	Number of cubic feet of air at or near the face of workings.	Number of cubic feet of air at outlet.
Leggett's Creek, Clark vein.	Delaware and Hudson Canal Company,	1	130	5	130,600	117,700	274,920
Leggett's Creek, 14 foot vein.	do.	1	63	4	168,380	142,470	154,380
Leggett's Creek, Diamond vein.	do.	1	34	4	4,200	4,200	4,200
Marvine shaft.	do.	1	332	6	102,707	99,471	106,001
Eddy Creek shaft.	do.	1	136	4	55,280	46,650	56,280
Eddy Creek slope.	do.	1	100	2	39,210	28,600	34,400
Olympian No. 2.	do.	1	139	4	34,010	49,000	55,180
Crassy Island shaft.	do.	1	275	4	84,620	80,880	85,450
White Oak No. 3.	do.	1	55	1	17,500	9,625	22,500
White Oak No. 3.	do.	1	124	1	20,880	16,250	13,500
Jermyn No. 1.	do.	1	408	6	107,750	104,250	111,410
Powderly slope.	do.	1	174	5	67,516	58,008	70,700
No. 1 slope.	do.	1	63	2	18,280	17,100	22,720
White Bridge tunnel.	do.	1	132	3	31,840	29,500	43,000
No. 3 shaft.	do.	1	180	2	26,760	14,130	28,020
Coalbrook tunnel.	do.	1	109	4	53,600	27,234	35,414
Wilson Creek.	do.	1	169	3	72,800	65,630	79,350
Clinton slope.	do.	1	162	3	61,025	42,625	63,840
Glenwood shaft.	do.	1	291	2	69,900	61,320	82,800
Keystone drift.	Hillside Coal and Iron Company,	1	135	2	77,200	74,000	82,130
do.	do.	1	325	5	75,623	72,032	80,116
Erie shaft.	do.	1	282	4	51,364	48,756	58,141
Forest City shaft.	do.	1	136	3	70,400	40,240	78,400
Forest City slope.	do.	1	161	4	48,394	27,774	49,114
Clifford shaft.	do.	1	242	4	65,430	55,404	74,632
Gypsy Grove No. 1.	Pennsylvania Coal Company,	1	95	2	41,000	32,000	41,000
Gypsy Grove No. 1.	do.	1	88	3	26,500	9,000	32,000
Richmond No. 3.	Elk Hill Coal and Iron Company,	1	296	3	95,900	82,670	99,180
Marshall.	Moosic Mountain Coal Company,	1	351	5	216,000	197,000	218,000
Marshall shaft.	Lackawanna Coal Company,	1	175	3	64,700	50,150	66,400
Jones, Simpson.	Jones, Simpson & Company,	1	131	3	60,000	43,750	74,000
Riverside shaft.	Riverside Coal Company,	1	183	3	94,200	73,700	97,100
Sturges shaft.	New York and Schuylkill Coal Company,	1	272	7	121,771	106,042	117,438
Ontario shaft.	do.	1	125	5	71,589	51,253	80,362
Storr's No. 1 shaft.	do.	1					
Storr's No. 2 shaft.	Delaware, Lackawanna and Western R. R. Co.,	1					
Storr's No. 3 shaft.	do.	1					

TABLE A—Continued.

Name of Mine.	Name of Operator.	Number of Fans.	Number of persons employed in air currents.	Number of separate air currents.	Number of cubic feet of air in inlet.	Number of cubic feet of air at or near the face of workings.	Number of cubic feet of air at outlet.
Storr's No. 3 shaft, ...	Delaware, Lackawanna and Western R. R. Co.,	1	129	5	124,497	119,930	149,485
Storr's drift, ...	do.		23	1	25,056	22,620	28,650
Blue Ridge shaft, ...	Blue Ridge Coal Company, ...	1	233	6	53,440	49,310	57,680
Edgerton drifts, ...	Edgerton Coal Company, ...	Natural,	133	5	89,000	90,300	91,100
Hendrick's No. 1, ...	do.	Fan,	60	1	83,200	74,800	37,100
Hendrick's No. 2, ...	do.	Natural,	118	1	26,300	46,500	27,700
Simpson slope No. 1, ...	Northwest Coal Company, ...	1	118	2	102,500	104,130	102,500
Simpson slope No. 2, ...	do.	1	170	2	102,500	104,130	102,500
Panocoast shaft, ...	Panocoast Coal Company, ...	1	395	6	106,150	104,130	108,620
Mt. Jessup slope, ...	Mt. Jessup Coal Company, ...	1	116	3	51,850	37,105	60,186
Dolph drift, ...	Dolph Coal Company, ...	1	194	3	73,000	57,600	79,000
Murray shaft, ...	Murray Coal Company, ...	Natural,	38	2	22,700	18,100	21,900
W. J. White, ...	W. J. White Coal Company, ...	Natural,	Idle,	2	22,700	18,100	21,900
Jermyn No. 3, ...	John Jermyn, ...	Fan,	209	4	192,540	65,950	96,610
Jermyn No. 4, No. 1, ...	do.	1	140	6	99,500	79,800	104,500
Sterrick Creek No. 2, ...	Sterrick Creek Coal Company, ...	1	108	2	70,970	53,890	72,215
Sterrick Creek drift, ...	do.	1	122	2	42,743	27,130	43,945
Mt. Vernon drift, ...	B. M. Winton & Others, ...	Natural,	Idle,	2	42,743	27,130	43,945
Pierce drift, ...	Pierce Coal Company, ...	Fan,	Idle,	2	42,743	27,130	43,945
Sunshine drift, ...	Davis & Nicholas, ...	Natural,	Abandoned,	2	42,743	27,130	43,945
Mill Creek drift, ...	W. J. Williams, ...	Natural,	Abandoned,	2	42,743	27,130	43,945
Stroud & Chamberlain drift, ...	Stroud & Chamberlain, ...	Natural,	Abandoned,	2	42,743	27,130	43,945
Richmond No. 4, ...	Elk Hill Coal and Iron Company, ...	Fan,	Idle,	2	42,743	27,130	43,945
Boyer drift, ...	Boyer Coal Company, ...	Natural,	Idle,	2	42,743	27,130	43,945
Total, ...		46	8,609	183	3,572,935	2,963,935	3,775,299

There were 1,217 persons not employed in any particular split of air: added makes a total of 9,836 employed in the mines.

* New opening; no report as yet.

TABLE B—Report of all Steam Boilers in use in the First Anthracite District of Pennsylvania During the Year Ending December 31, 1893.

Location of Boilers.	Number of boilers.	Dimensions.		Pressure per square inch.	Date when gauge was tested.	Date of boiler examination.	Present condition.	Kind of Steam Gauges.
		Length in feet.	Diameter in inches.					
<i>Delaware & Hudson Canal Co.,</i>								
Leggett's Creek shaft, ...	21	30	34	80	October 29, 1893,	October 29, 1893,	Good.	Ashcroft.
Marvine shaft, ...	21	36	34	80	October 29, 1893,	October 29, 1893,	do.	do.
Eddy Creek shaft, ...	12	36	34	80	November 26, 1893,	November 26, 1893,	do.	do.
Olyphant No. 2 shaft, ...	19	36	34	80	November 26, 1893,	November 26, 1893,	do.	do.
Olyphant No. 2 breaker, ...	6	36	34	80	November 26, 1893,	November 26, 1893,	do.	do.
Grassy Island shaft, ...	12	36	34	80	November 26, 1893,	November 26, 1893,	do.	do.
White Oak breaker, ...	9	40	34	80	November 26, 1893,	November 26, 1893,	do.	do.
White Oak breaker, ...	9	35	34	80	November 26, 1893,	November 26, 1893,	do.	do.
Jermyn No. 1 shaft, ...	16	35	34	75	November 25, 1893,	November 25, 1893,	do.	do.
Jermyn No. 1 shaft, ...	9	35	34	75	November 18, 1893,	November 18, 1893,	do.	do.
Powderly slope, ...	9	35	34	75	November 27, 1893,	November 27, 1893,	do.	do.
Powderly Bore Hole, ...	3	35	34	75	November 1, 1893,	November 1, 1893,	do.	do.
No. 1 pump shaft, ...	3	30	30	60	November 20, 1893,	November 20, 1893,	do.	do.
No. 1 fan, ...	3	30	30	60	November 4, 1893,	November 4, 1893,	do.	do.
No. 3 shaft, ...	3	35	34	60	November 27, 1893,	November 27, 1893,	do.	do.
No. 3 air shaft, ...	3	35	34	60	November 4, 1893,	November 4, 1893,	do.	do.
Coalbrook breaker, ...	4	35	34	60	November 4, 1893,	November 4, 1893,	do.	do.
Coalbrook fan, ...	3	35	34	60	November 4, 1893,	November 4, 1893,	do.	do.
Wilson Creek, ...	2	35	34	70	November 30, 1893,	November 30, 1893,	do.	do.
Racket Brook Breaker, ...	6	35	34	60	November 4, 1893,	November 4, 1893,	do.	do.
Clinton slope, ...	6	35	34	60	November 4, 1893,	November 4, 1893,	do.	do.
<i>Hillsite Coal & Iron Co.,</i>								
Erle breaker, ...	15	30 and 31	34	75	January 6, 1894,	Jan. 6, 7, 8, 10, 1894,	do.	Borden.
Keystone, ...	2	30	34	70	January 3, 1894,	January 3, 1894,	do.	Buffalo.
Pump shaft, ...	9	20 and 26	34	70	January 5, 9, 1894,	Jan. 5, 9, 1894,	do.	Regent.
Greenwood shaft, ...	10	20 and 25	34	90	January 8, 1894,	Jan. 3, 4, 6, 8, 1894,	do.	Ashcroft.
Forecity breaker, ...	2	30	34	70	December 3, 1893,	December 3, 1893,	do.	Rochester.
Do. slope, ...	2	30	34	70	December 4, 1893,	December 4, 1893,	do.	Crosby.
Do. slope, ...	2	36	34	70	November 24, 1893,	November 24, 1893,	do.	do.
Do. do., ...	2	30	34	70	December 3, 1893,	December 3, 1893,	do.	Buffalo.
Do. do., ...	2	30	34	70	December 3, 1893,	December 3, 1893,	do.	Ashcroft.
Do. shaft, ...	2	20½	48	80	December 4, 1893,	December 4, 1893,	do.	do.

TABLE B—Continued.

Location of Boilers.	Number of boilers.	Dimensions.		Pressure per square inch.	Date when range was tested.	Date of boiler examination.	Present condition.	Kind of Steam Gauges.
		Length in feet.	Diameter in inches.					
Forest City shaft, Do. Do. Do. Clifford locomotive. Hillside locomotive. Clifford breaker and shaft. Do. Do. Do. Forest City locomotive.	2 1 2 2 1 1 2 2 2 2 1	19 ft. 9 in. 17 22 19 ft. 9 in. 10 10 20 ft. 6 in. 22 19 ft. 9 in. 19 ft. 9 in. 10	48 48 54 26 26 48 48 54 54 26	80 80 80 120 110 85 85 85 85 120	December 4, 1893, November 24, 1893, November 24, 1893, December 3, 1893, December 5, 1893, December 4, 1893, December 3, 1893, December 3, 1893, { Nov. 24, 1893, Dec. 10, 1893, December 4, 1893,	December 4, 1893, November 24, 1893, November 24, 1893, December 3, 1893, December 5, 1893, December 4, 1893, December 3, 1893, December 3, 1893, November 24, 1893, December 10, 1893, December 4, 1893,	Good. do. do. do. do. do. do. do. do. do. do.	Buffalo. Schofield. do. Ashcroft. Buffalo. Cleveland. Buffalo. Crosby. do. Buffalo. Utica.
<i>Pennsylvania Coal Co.</i> Gypsy Grove, No. 1 shaft. Do. breaker.	10 12 5	36 36 36	34 30 30	80 80 75	September 29, 1893, September 29, 1893, September 27, 1893,	Sept. 27, 28, 1893, September 27, 1893, September 27, 1893,	do. do. do.	Cart and Crosby. Crosby. do.
<i>John Fernyn.</i> Jernyn, No. 3. Do. No. 4.	12 21	36 36	34 34	60 60	October 22, 1893, October 15, 1893,	October 15, 22, 1893, Oct. 1, 9, 15, 1893,	do. do.	Everhart. do.
<i>Elle Hill Coal & Iron Co.</i> Rheo and No. 3. Do. No. 3. Do. No. 3. Do. No. 3. Do. No. 4.	6 2 1 4	49 16 and 18 11 16	34 68 and 64 36 66	80 80 80 80 to 90	December 4, 1893, December 4, 1893, December 4, 1893, ...	December 4, 1893, December 4, 1893, December 4, 1893, January —, 1894,	do. do. do. do.	Crosby do. do. do.
<i>Dela. Lack a & Western R. R. Co.</i> Storr's Nos. 1 and 2. Do. Storr's Mines No. 3. Locomotive boilers.	10 4 4 3	40 Flue Flue	34 boilers, boilers, ...	85 85 85 100	December 12, 1893, December 8, 1893, December 8, 1893, December 8, 1893,	December 12, 1893, December 8, 1893, December 8, 1893, December 8, 1893,	do. do. do. do.	Utica. do. do. do.
<i>Miscellaneous Companies.</i> North West Coal Co.,	13	50	34	80	Nov. 1 to 12, 1893,	Nov. 1 to 12, 1893,	do.	Spring (Utica)

Do.	do.	6	36	34	80	Nov. 1 to 12, 1893,	Nov. 1 to 12, 1893,	do.	do.
Do.	do.	1	25	48	80	Nov. 1 to 12, 1893,	Nov. 1 to 12, 1893,	do.	do.
Do.	do.	11	11	52	80	Nov. 1 to 12, 1893,	Nov. 1 to 12, 1893,	do.	do.
Do.	do.	1	200 H.	52	80	Nov. 1 to 12, 1893,	Nov. 1 to 12, 1893,	do.	do.
Edgerton Coal Co.	do.	6	37	34	80	June	June	do.	(Utica).
Murray, Carney & Brown.	do.	3	30	34	80	September 1, 1893,	September 1, 1893,	do.	Crosby.
Nancoast Coal Co.,	do.	24	36	34	80	September 13, 1893,	September 13, 1893,	1st class,	American, Crosby, Shaffer & Badenburgh.
Riverside Coal Co.,	do.	3	50	36	80	October —, 1893,	October —, 1893,	Good,	Belfield.
Jonas Simpson & Co.—	do.	6	40	34	85	October 29, 1893,	October 8, 15, 1893,	do.	Utica.
Do.	do.	3	36	34	85	October 10, 1893,	October 15, 1893,	do.	Buffalo.
Do.	do.	2	16	54	90	October 29, 1893,	October 22, 1893,	do.	Crosby.
Raymond breaker,	do.	2	12	12	120	October 29, 1893,	October 21, 1893,	do.	Ashcroft.
Locomotives No. 1,	do.	1	12	12	120	October 29, 1893,	October 8, 1894,	do.	Star.
Do. No. 2,	do.	1	12	12	120	October 22, 1893,	October 22, 1893,	do.	Ashcroft.
Do. No. 3,	do.	1	14	12	120	November 12, 1893,	November 12, 1893,	do.	do.
Do. No. 4,	do.	1	36	34	75	September, ...	September, ...	do.	Finch.
Lackawanna Coal Co.,	do.	24	40	36	80	September, ...	September, ...	do.	Ashcroft.
New York & Scranton C. Co.,	do.	17	16	60	80	September, ...	September, ...	do.	do.
Do.	do.	1	16	60	80	September, ...	September, ...	do.	do.
Sterrick Creek Coal Co.—	do.	3	36	34	65	November 18, 1893,	November 18, 1893,	do.	Crosby.
Do.	do.	6	40	34	65	November 18, 1893,	November 18, 1893,	do.	do.
Do.	do.	6	40	34	65	December 10, 1893,	December 10, 1893,	do.	Crosby and Ashcroft.
Pierce Coal Co.,	do.	11	12 to 34	30 to 34	80 to 120	November 12, 1893,	November 12, 1893,	do.	Crosby.
Blue Ridge Coal Co.,	do.	13	40	34	75	July 8, 1893,	October 3, 1893,	do.	Crosby.
Mt. Jessup Coal Co., (Lim.)—	do.	2	35	40	75	July 23, 1893,	July 23, 1893,	do.	Buffalo and Crosby.
Do.	do.	3	30	30	75	July 5, 1893,	July 5, 1893,	do.	Buffalo.
Do.	do.	3	30	30	75	July 22, 1893,	July 22, 1893,	do.	do.
Do.	do.	3	35	30	75	July 22, 1893,	July 19, 1893,	do.	do.
Do.	do.	5	36	34	75	July 22, 1893,	July 20, 21, 1893,	do.	do.
Do.	do.	1	12	27	110	June 17, 1893,	June 17, 1893,	do.	Belfield.
Mine locomotive,	do.	1	36	36	80	August —, 1893,	August —, 1893,	do.	Crosby.
Moosic Mt. Coal Co.—	do.	4	36	34	80	August —, 1893,	August —, 1893,	do.	do.
Marshwood,	do.	4	36	34	80	August —, 1893,	August —, 1893,	do.	do.
Do.	do.	3	20	42	80	August —, 1893,	August —, 1893,	do.	do.
Do.	do.	1	36	30	50 to 60	August —, 1893,	August —, 1893,	do.	Utica.
Winton Coal Co.,	do.	3	36	30	60	August —, 1893,	August —, 1893,	do.	B. & W.
Dolph Coal Co.,	do.	4	36	34	60	July —, 1893,	July —, 1893,	do.	do.
Do.	do.	1	10	54	60	July —, 1893,	July —, 1893,	do.	do.
Do.	do.	1	18	54	60	September 4, 1893,	September 4, 1893,	do.	Stevens.
Franklin Coal Co.,	do.	1	21	52	80	September —, 1893,	September —, 1893,	do.	do.

TABLE C—Showing the number and horse power of each class of engines and number of steam boilers in use in the First Anthracite District during the year 1893.

Name of Collieries.	Number of boilers en- gines.	Horse power.	Number of breaker en- gines.	Horse power.	Number of pumping en- gines.	Horse power.	Number of fan engines.	Horse power.	Number of donkey pumps.	Horse power.	Number of mine loco- motives.	Horse power.	Number of electrical engines.	Horse power.	Number of culm blow- ing engines.	Horse power.	Total number of en- gines.	Total horse power.	Number of steam boilers.
<i>Delaware and Hudson Canal Company.</i>																			
Leggett's Creek, ...	4	467	1	61	1	130	8	166	6	152	1	132	1	132	1	132	1	132	1
Marvine, ...	3	200	1	61	1	77	2	117	2	132	1	132	1	132	1	132	1	132	1
Eddy Creek, ...	6	258	1	36	1	77	1	117	6	221	1	221	1	221	1	221	1	221	1
Gypsyant No. 2, ...	5	188	1	36	1	77	1	117	6	221	1	221	1	221	1	221	1	221	1
White Oak, ...	1	144	1	61	1	77	1	117	6	221	1	221	1	221	1	221	1	221	1
Jerseyland, ...	1	144	1	61	1	77	1	117	6	221	1	221	1	221	1	221	1	221	1
Powderly, ...	3	291	1	56	1	100	1	166	5	191	1	191	1	191	1	191	1	191	1
Jersey No. 1, ...	2	117	1	36	1	100	1	166	5	191	1	191	1	191	1	191	1	191	1
No. 3 shaft, ...	2	117	1	36	1	100	1	166	5	191	1	191	1	191	1	191	1	191	1
Racket Brook, ...	2	117	1	36	1	100	1	166	5	191	1	191	1	191	1	191	1	191	1
Wilson Creek, ...	2	16	1	77	1	100	1	166	5	191	1	191	1	191	1	191	1	191	1
Coal Brook, ...	1	56	1	77	1	100	1	166	5	191	1	191	1	191	1	191	1	191	1
Clinton, ...	4	148	1	61	1	100	1	166	5	191	1	191	1	191	1	191	1	191	1
Totals, ...	36	2,029	10	612	6	410	15	748	43	1,320	3	80	80	80	113	5,139	161	5,139	161
<i>Hillside Coal and Iron Company.</i>																			
Glenwood, ...	3	260	1	40	1	60	2	80	9	315	1	315	1	315	1	315	1	315	1
Keystone, ...	1	30	1	30	1	60	1	40	5	215	1	215	1	215	1	215	1	215	1
Erie, ...	3	140	1	40	1	60	2	40	5	85	4	85	4	85	4	85	4	85	4
Forest City, ...	4	200	1	40	1	60	1	60	5	60	1	60	1	60	1	60	1	60	1
Clifford, ...	4	200	1	40	1	60	1	60	5	60	1	60	1	60	1	60	1	60	1
Totals, ...	15	830	5	190	1	60	6	320	24	675	6	280	4	280	61	2,710	74	2,710	74
<i>Pennsylvania Coal Company.</i>																			
Gypsy Grove, ...	3	192	1	76	2	186	1	28	1	28	1	28	1	28	1	28	1	28	1
Gypsy Grove No. 1, ...	5	410	1	82	3	186	1	53	1	53	1	53	1	53	2	106	13	870	17
Totals, ...	8	602	2	158	5	372	2	81	1	81	1	81	1	81	2	106	20	1,352	27

[illegible]

Recapitulation.

Delaware and Hudson Coal Company, ...	35	2,029	10	612	6	410	15	748	43	1,330	3	80		113	5,199	161			
Hillside Coal and Iron Company, ...	15	830	5	190	1	60	6	320	24	675	6	280		61	2,710	74			
Pennsylvania Coal Company, ...	8	602	2	158	5	372	31	81			1	35		20	1,352	27			
John Derryn, ...	9	780	2	110			2	100	6	115				2	1,165	53			
Delaware, Lackawanna and Western Rail- road Company, ...	16	1,591	1	74			4	354	13	1,198	3	282			37	3,490	90		
Elk Hill Coal and Iron Company, ...	3	240	3	165	5	100	2	80	1	43	1	90			15	718	13		
Miscellaneous companies, ...	41	2,980	21	1,280	4	138	17	755	60	1,505	18	800		1	75	7,568	209		
Grand totals, ...	128	9,050	44	2,589	21	1,080	48	2,438	147	4,916	32	1,565	5	390	3	181	428	22,211	537



SECOND ANTHRACITE DISTRICT.

(LACKAWANNA COUNTY.)

Scranton, April 9, 1894.

Hon. Thos. J. Stewart, Secretary of Internal Affairs:

Sir: I have the honor of herewith presenting my annual report for the year ending December 31, 1893.

The accompanying tables show in detail the condition of the mines, the quantity of coal mined, shipped, used for steam purposes at collieries, and quantity sold at each colliery, the condition of ventilation, also the condition of boilers when last examined and reported.

SYNOPSIS OF REPORTS FOR YEAR 1893.

Number of mines in district, ...	44
Number of breakers in district, ...	36
Average number of days worked, ...	192.27
Number of persons employed, ...	14,491
Number of tons of coal produced, ...	5,936,475.02
Number of tons of coal shipped, ...	5,425,339.11
Number of tons of coal consumed at collieries, ...	328,175.12
Number of tons of coal sold for local consumption, ...	182,562.19
Number of kegs of powder used at mines, ...	206,737½
Number of persons employed in mines, ...	10,106
Number of miners employed in mines, ...	3,534
Number of miners' laborers employed in mines, ...	3,411
Number of other employes in mines, ...	3,161
Number of persons employed outside, ...	4,385

There are 55 mine foremen.

There were 35 fatal accidents. There was one fatal accident for 169,614 tons of coal mined. There were 13 wives left widows by the above casualties. There were 68 children left orphans.

There were 173 non-fatal accidents.

There were 34,315 tons of coal mined for each non-fatal accident.

There were 1,680 tons of coal produced for each miner employed.

There were 1,740 tons of coal produced for each miner's laborer employed.

There were 855 tons produced for each miner and laborer jointly.

There were 587 tons produced for each employe in the mines.

There were 409.67 tons produced for each employe at each colliery.

There was one fatal accident for every 413 persons employed.

There was one non-fatal accident for every 84 persons employed.

CLASSIFICATION AND PERCENTAGE OF FATAL ACCIDENTS.

Falls of roof and coal, 16 persons killed, equal to, ...	45.71%
By powder and blasts, 7 killed, equal to	20.00%
By cars, 6 killed, equal to	17.14%
By gas explosions, 1 killed, equal to, ...	2.86%
Miscellaneous causes, 5 killed, equal to	14.29%
Total, ...	100.00%

NATIONALITY AND PERCENTAGE OF PERSONS WHO WERE KILLED.

Irish, 13 deaths, equal to	37.14%
Polanders, 11 deaths, equal to	31.43%
Italians, 3 deaths, equal to, ...	8.58%
Welsh, 2 deaths, equal to, ...	5.71%
English, 2 deaths, equal to, ...	5.71%
Americans, 2 deaths, equal to, ...	5.71%
Germans, 1 death, equal to, ...	2.86%
French, 1 death, equal to, ...	2.86%
Total, ...	100.00%

There were very few improvements during the year, except what were made for the economic working of the mines and transportation of coal.

The following persons passed a good examination and were recommended to the Secretary of Internal Affairs to have certificates issued to them qualifying them to hold the position of mine foremen and assistant mine foremen.

Names.	Position.	Postoffice Address.
Samuel D. Phillips, ...	Mine Foreman, ...	Scranton, Pa.
William McGulgan, ...	do.	do.
William R. Wilson, ...	do.	Dunmore, Lackawanna county.
John M. Coyne, ...	do.	Lackawanna, Lackawanna county.
Harry Courtwright, ...	Assistant Mine Foreman, ...	Taylor, Lackawanna county.
Harry J. Davies, ...	do. do.	Scranton, Lackawanna county.
John J. Hughes, ...	do. do.	do. do.
Thomas F. Jones, ...	do. do.	do. do.
B. D. Moyle, ...	do. do.	do. do.
Frank E. Cosgrove, ...	do. do.	Old Forge, Lackawanna county.
John Reid, ...	do. do.	Scranton, Lackawanna county.
Morgan H. Williams, ...	do. do.	do. do.
Howell G. Reese, ...	do. do.	do. do.
Evan H. Evans, ...	do. do.	do. do.
Joseph Powell, ...	do. do.	do. do.
Edmund Davis, ...	do. do.	do. do.
Evan C. Davis, ...	do. do.	do. do.

Respectfully submitted,

PATRICK BLEWITT,

Inspector of Mines.

Scranton, Pa., February 28, 1894.

Patrick Blewitt, Esq., Inspector of Mines:

Dear Sir: Your request for a description of the territory and plant of the West Ridge Coal Company is received, and in reply have to state as below:

The land the company proposes to mine is known as the Von Storch land, two lots of 100 acres each, and an adjoining lot on the southwest known as the Robinson and Griffin lot, 50 acres, making in all 250 acres of land. In 1857 leases were made for certain veins (from the Diamond to the Clark veins, inclusive), to the Delaware and Hudson Coal Company, who have been mining this coal ever since. The leases of the West Ridge Coal Company cover the veins above and below those leased to the Delaware and Hudson Canal Company, and also all the coal in the pillars in the veins leased to said Delaware and Hudson Canal Company. This gives the West Ridge Coal Company the three veins above the Diamond, locally known as the Olyphant No. 1, Richmond and Church veins, together with the three Dunmore veins lying below the Clark. When the lease above referred to was made to the Delaware and Hudson Canal Company a reservation of 6 acres (being a strip of land 850 feet long by 330 feet wide) extending across the property, was excepted. It is on this reservation that the shaft and slope have

been sunk and on account of this fact the property had to be opened up by a slope for taking out the coal, rather than by the better plan of working it entirely by shaft. The shaft will eventually be sunk to a depth of 550 feet, the size of the same being 12x32, consisting of two carriage ways, an airway and a pump way. The airway does not come to the surface, but only as far as the Diamond vein. The shaft will be used for hoisting the coal from the lower veins to the Diamond vein, where the coal will be run by gravity to the foot of the slope. The veins above the Diamond veins will be attacked by driving a rock plane up, and then lowering the coal to the foot of said plane, where it will run by gravity to the foot of the slope. The slope has an inclination of 1' in 4", and is continued down through the Diamond vein to the rock vein next below. The distance between the rock vein and the Diamond vein at the shaft is only $4\frac{1}{2}$ feet; at the foot of the slope it is 25 feet, thus enabling us to drop off the light cars at the slope, and let them run by gravity to the foot of the plane, and also to the foot of the shaft, and at the same time carry the loaded cars from the foot of said plane and shaft to the foot of the slope. In addition to the shaft opening and the slope opening, another slope has been sunk nearly parallel with the hoisting slope for the purposes of an airway, so as to have it separate and distinct from the main hoisting slope. We propose to use wire rope haulage on our main roads and electric haulage for gathering the cars and bringing them to the main road. Knowing the dip of the measures and the general lay of the coal, a straight gangway will be driven through the centre of the property lengthwise, and gangways opened right and left from this road at points favorable for gravity to act in favor of the loaded cars, thus enabling us to use electricity to the best advantage.

The West Ridge leases were made February, 1893; ground was broken for sinking the shaft May 11, 1893. Work on the slope was begun June 15, 1893. Work on the breaker site was begun August 14. Began running coal through the breaker January 8, 1894. The plant consists of one pair of hoisting engines at the shaft, one return flue tubular boiler. At the breaker, one pair of geared hoisting engines, 16x30-inch cylinder, one breaker engine, 18x30, one high speed electric engine, 160 horse power, one 100 M. P. generator, one fan engine, 18x30, with a 20 Guiball fan, four return flue tubular boilers, together with all the ordinary breaker machinery, shop engines, etc., etc. Breaker is capable of an output of 1,500 to 2,000 tons a day. Coal is shipped via New York, Ontario and Western Railway. The breaker is situated alongside their main track between this city and Carbon-dale.

Yours very truly,

J. H. RITTENHOUSE,
General Manager.

TABLE No. 1.—Giving Names and Location of Collieries, Names of Operators and Superintendents with their Post Office Address, Names of Mine Foremen and Assistant Mine Foremen, Names of Outside Foremen, in the Second Anthracite District, for the Year Ending December 31st, 1893.

No. of collieries.	Names of Collieries.	Location—Lackawanna County.	By Whom Operated.	Names of Superintendents and Managers.
1	Archbald shaft,	Lackawanna township,	Del., Lack and West. R. R. Co.,	William R. Storrs, general coal agent. William H. Storrs, assistant general coal agent. Benjamin Hughes, general mine superintendent. Thos. D. Davies, assistant mine superintendent. Thos. W. Phillips, assistant mine superintendent. John T. Snyder, chief engineer coal department. Townsend Poor, master mechanic.
2	Bellevue shaft,	do.	do.	
3	Bellvue slope,	do.	do.	
4	Brishno shaft,	City of Scranton,	do.	
5	Cayuga shaft,	do.	do.	
6	Central shaft,	do.	do.	
7	Continental shaft,	Lackawanna township,	do.	
8	Dodge shaft,	do.	do.	
9	Diamond No. 2 shaft,	City of Scranton,	do.	
10	Diamond "Tripp" slope,	do.	do.	
11	Diamond Tripp shaft,	do.	do.	
12	Holden shaft,	Lackawanna township,	do.	Austin Moore, general superintendent. A. H. Vandling, general superintendent. J. M. Chittenden, outside supt., A. Nicol, mine supt. Christian Shearer, mining engineer. William P. Morgan, superintendent.
13	Hampion shaft,	do.	do.	
14	Hyde Park shaft,	City of Scranton,	do.	
15	Manville shaft,	do.	do.	
16	Oxford shaft,	do.	do.	
17	Pyne shaft,	Lackawanna township,	do.	
18	Sloan shaft,	do.	do.	
19	Taylor shaft,	do.	do.	
20	Taylor drift,	do.	do.	
21	Township shaft,	Old Forge township,	Austin Coal Company,	
22	Wagon shaft,	City of Scranton,	do.	William Connell, superintendent. Samuel T. Jones, superintendent. Thomas Savage, superintendent. O. S. Johnson, superintendent. John Lovering, superintendent.
23	Von Storch shaft,	do.	do.	
24	Von Storch slope,	do.	do.	
25	Canouse shaft,	do.	do.	
26	Pine Brook shaft,	do.	do.	
27	Meadow Brook shaft,	do.	do.	
28	Meadow Brook tunnel,	do.	do.	
29	National slope and shaft,	do.	do.	
30	Stafford shaft,	do.	do.	
31	Wm. A. shaft,	do.	do.	
32	Mount Pleasant shaft,	Old Forge township,	The Connell Coal Company,	William Connell, superintendent. Samuel T. Jones, superintendent. Thomas Savage, superintendent. O. S. Johnson, superintendent. John Lovering, superintendent.
33	Green Ridge slope,	City of Scranton,	William T. Smith,	
34	Greenwood No. 1 shaft,	do.	O. S. Johnson,	
35	Greenwood No. 2 shaft,	Lackawanna township,	Greenwood Coal Company, Ltd.,	
36	Greenwood Nos. 8 and 12 drifts,	do.	do.	

TABLE 1—Continued.

No. of collieries.	Names of Collieries.	Location—Lackawanna County.	By Whom Operated.	Names of Superintendents and Managers.
37	Old Forge No. 1 shaft, ...	Old Forge township, ...	Pennsylvania Coal Company, . . .	John B. Smith, general superintendent.
38	Old Forge No. 2 shaft, ...	do.	do.	George B. Smith, assistant general superintendent.
39	Bunker Hill No. 2 drift, ...	Dunmore borough, ...	do.	James Young, general mine superintendent in Dunmore.
40	Shaft No. 5, Dunmore, ...	do.	do.	Anthony Horan, general mine superintendent in Pittston.
41	Jermyn No. 1 shaft, ...	Old Forge township, ...	Jermyn & Company, ...	J. J. Jermyn, superintendent.
42	Jermyn No. 2 shaft, ...	do.	do.	James C. McClure, superintendent.
43	Sibley shaft, ...	do.	do.	A. D. and F. M. Spencer, superintendents.
44	Providence Coal Co. shaft, ...	City of Scranton, ...	Elliott McClure & Company, Ltd., . . .	J. H. Rittenhouse, superintendent.
45	Spencer's shaft, ...	Dunmore borough, ...	A. D. & F. M. Spencer, ...	
46	West Ridge shaft and slope, ...	City of Scranton, ...	West Ridge Coal Company, ...	

TABLE I—Continued.

No. of collieries.	Names of Collieries.	Postoffice Address.	Names of Outside Foremen.	Names of Mine Foremen and Assistants.
1	Archbald shaft, ...	Scranton, Pa., ...	John Fern, ...	Joseph D. Lloyd.
2	Bellevue shaft, ...		B. C. Green, ...	John Hale.
3	Bellevue slope, ...		do, ...	Samuel D. Phillips.
4	Brisbin shaft, ...		E. H. Evans, ...	Frank Zimmerman.
5	Cayuga shaft, ...		Giles S. Decker, ...	John P. Morgans.
6	Central shaft, ...		Fred. Peters, ...	Lewis Roberts; H. P. Davies, assistant.
7	Continental shaft, ...		John F. Green, ...	Richard H. Williams.
8	Dodge shaft, ...		S. M. Ives, ...	Edward James; William R. Evans, assistant.
9	Diamond No. 2 shaft, ...		W. S. Langstaff, ...	do.
10	Diamond "Tripp" slope, ...		do, ...	Henry G. Davis.
11	Diamond Tripp shaft, ...	Scranton, Pa., ...	do, ...	James A. Evans.
12	Holsten shaft, ...		H. A. Fillmore, ...	Thomas E. Williams.
13	Hampton shaft, ...		J. H. Hoffman, ...	Eljah Dagger; William H. Harris, assistant.
14	Lloyd Park shaft, ...		E. B. Thomas, ...	D. W. Mosier; William J. Thomas, assistant.
15	Mayfield shaft, ...		E. B. Albert, ...	Thomas J. Williams.
16	Oxide shaft, ...		William R. Ford, ...	Thomas J. Phillips; Daniel S. Evans, assistant.
17	Pine shaft, ...		A. Rheinbart, ...	Resse M. Phillips.
18	Sloan shaft, ...		Fred Peters, ...	James M. Thomas.
19	Taylor shaft, ...		J. C. Cooper, ...	Lewis Roberts; idle for year 1893.
20	Taylor drift, ...		do, ...	John R. Johns.
21	Austin shaft, ...	Scranton, Pa., ...	Anthony J. Thompson, ...	Henry Harris.
22	Dickson shaft, ...	Scranton, Pa	W. McDonnell, ...	P. S. Coyne.
23	Von Storch shaft, ...		Charles W. Ziegler, ...	Alex. Akman.
24	Von Storch slope, ...	Scranton, Pa., ...	do, ...	Martin Loftus.
25	Capouse shaft, ...		do, ...	E. D. Jones.
26	Pine Brook shaft, ...	Scranton, Pa., ...	D. J. Bevan, ...	Joseph Reese.
27	Meadow Brook shaft, ...		Henry A. Hess, ...	J. H. Powell.
28	National slope and shaft, ...	Scranton, Pa., ...	Michael L. Coyne, ...	Samuel T. Jones.
29	Staford shaft, ...		Samuel T. Jones, ...	Thomas H. Williams.
30	Mount Pleasant shaft, ...	Scranton, Pa., ...	Frank Sleppy, ...	David Griffiths.
31	Wm. A. shaft, ...		Evan T. Morgan, ...	Evan T. Morgan.
32	Green Ridge slope, ...	Scranton, Pa., ...	Patrick J. Judge, ...	David W. Evans.
33	Greenwood No. 1 shaft, ...		Thomas Sprague, ...	John von Bergen.
34	Greenwood No. 2 shaft, ...	Scranton, Pa., ...	William S. Boyd, ...	Thomas H. Jones.
35	Greenwood No. 3 shaft, ...		T. J. McCarthy, ...	H. J. Brooks.
36	Old Forge No. 1 shaft, ...	Dunmore, Lackawanna county, Pa., ...	T. K. Sovering, ...	David A. Jones.
37	Old Forge No. 2 shaft, ...		Richard Howard, ...	Rowland Davis.
38	Old Forge No. 3 shaft, ...	Pittston, Luzerne county, Pa., ...	do, ...	Edward S. Haley and James Blease.
39	Bunker Hill No. 2 drift, ...		John Michel, ...	Alexander Allen.
40	Shaft No. 5, Dunmore, ...		Christopher Moffat, ...	William R. Wilson.

TABLE 1—Continued.

No. of collieries.	Name of Collieries.	Postoffice Address.	Names of Outside Foremen.	Names of Mine Foremen and Assistants.
42	Jermyn No. 1 shaft, ...	{ Scranton, Pa., ... Scranton, Pa., ... do. Dunmore, Lackawanna county, Pa., ... Scranton, Pa., ...	Joseph Merritt, ...	Stephen Johns.
43	Jermyn No. 2 shaft, ...		W. E. Merritt, ...	Simpson Wharton.
44	Sibley shaft, ...		John F. Nicely, ...	Thomas Cosgrove.
45	Providence Coal Company's shaft, ...		A. D. and F. M. Spencer, ...	William Allen; John J. Gibbons, assistant.
46	Spencer's shaft, ...		B. F. Filmore, ...	P. H. Mongan T. H. Jones.
	West Ridge shaft and slope, ...			

TABLE NO. 2.—Giving the total number of tons of coal mined, shipped, sold and consumed at each colliery, number of days worked, number of persons employed, number of persons fatally injured, the number of widows and orphans left, the number of kegs of powder used at each mine, the total amount of ventilation and its condition, in the Second Anthracite District, for the year ending December 31st, 1893.

Number of collieries.	Name of Collieries.	Total number of tons of coal produced.	Total number of tons of coal shipped to market.	Total number of tons of coal consumed at mines.	Total number of tons of coal sold at mines.	Total number of kegs of powder used at mines.	Number of persons employed at each colliery.	Number of days worked.	Number of fatal accidents.	Number of widows.	Number of orphans.	Number of horses and mules.	Number of locomotives.	Horse power of locomotives.
1	Arebald shaft colliery.	194,192.13	185,629.13	9,200.00	1,363.00	6,443	524	188.5	1	..	..	75	..	..
2	Bellevue shaft colliery.	237,294.19	217,534.19	14,000.00	5,363.00	6,522	561	174.9	..	..	..	88	1	94
3	Bellevue slope colliery.	196,394.05	182,727.12	9,900.00	3,705.13	4,694	451	178.8	..	..	..	54	1	74
4	Brisben shaft colliery.	203,479.02	180,146.02	20,000.00	3,333.00	5,256	467	56.9	..	..	..	63	1	94
5	Cayuga shaft colliery.	248,604.12	179,886.12	27,700.00	1,018.00	5,097	530	181.9	2	2	10	70	3	242
6	Central shaft and Sloan breaker.	185,619.01	177,885.01	5,400.00	2,334.00	5,987	480	183.5	..	1	6	65	..	..
7	Continental shaft colliery.	169,767.02	157,775.02	10,000.00	1,992.00	5,648	401	185.1	2	..	..	77	1	94
8	Dodge shaft colliery.	254,281.19	232,290.19	18,000.00	3,991.00	7,012	530	195.9	..	1	3	71	3	262
9	Diamond No. 2 and Tripp shaft and slope.	385,963.07	78,042.07	5,000.00	421.00	2,100	209	169.5	1	1	..	30	..	..
10	Holden shaft colliery.	162,579.05	132,201.05	7,000.00	3,378.00	4,571	419	186.1	..	..	..	64	..	..
11	Hampton shaft colliery.	147,004.12	142,622.12	4,382.00	..	6,012	399	190.7	2	1	15	63	..	..
12	Hyde Park shaft colliery.	62,068.15	53,353.18	7,500.00	1,214.17	3,134	177	97.12	1	..	..	16	..	..
13	Marville (half time) shaft colliery.	134,141.03	134,141.03	7,600.00	19,336.00	5,002	413	187.8	..	..	..	94	1	94
14	Oxford shaft colliery.	200,336.09	191,395.09	7,500.00	1,441.00	5,524	420	188.6	..	..	..	60	1	94
15	Pyne shaft colliery.*	..	..	..	..	..	..	..	..	..	..	..	..	..
16	Tripp shaft colliery.*	..	..	..	..	..	..	..	..	..	..	..	..	..
17	Tripp slope colliery.*	..	..	..	..	..	..	..	..	..	..	..	..	..

* Statistics returned on this sheet with Diamond No. 2.

TABLE No. 2. — *Continued.*

Number of collieries.	Name of Collieries.	Total number of tons of coal produced.	Total number of tons of coal shipped to market.	Total number of tons of coal consumed at mines.	Total number of tons of coal sold at mines.	Total number of kegs of powder used at mines.	Number of persons employed at each colliery.	Number of days worked.	Number of fatal accidents.	Number of widows.	Number of orphans.	Number of horses and mules.	Number of locomotives.	Horse power of locomotives.
18	Taylor shaft colliery, ...	182,248.01	171,985.01	6,870.00	5,393.00	3,264	448	189.3	..	..	..	64	..	..
19	Taylor drift colliery, ...	..	..	..	..	..	167	..	..	..	..	..	..	..
	Miscellaneous employees — Superintendents, clerks, mechanics, etc., ...	..	..	..	..	..	..	..	..	..	..	..	..	..
	Totals, + ...	2,630,901.05	2,477,617.15	160,052.00	52,834.10	78,651	6,538	181.25	11	5	34	954	12	1,048
20	Austin tunnel colliery, ...	50,209.11	47,542.19	1,849.12	817.00	2,242	174	163.5	..	..	..	14	1	10
21	Dickson shaft colliery, ...	244,740.14	233,183.18	8,781.00	2,775.16	6,705	458	225	..	..	..	44	..	..
22	Von Storch shaft colliery, ...	254,273.07	214,234.15	31,170.00	8,868.12	6,205	639	217.5	3	..	3	82	..	..
23	Manville shaft (half time), ...	65,246.00	54,090.02	9,885.00	1,270.18	3,709	177	95	1	..	..	..	..	..
24	Capouse shaft colliery, ...	281,848.00	271,190.00	7,600.00	3,158.00	9,956	502	224	..	..	..	86	..	..
25	Pine Brook shaft colliery, ...	205,023.00	179,135.00	7,000.00	18,388.00	10,159	548	161.1	1	..	..	79	..	..
26	Wm. A shaft colliery, ...	239,119.05	224,980.05	12,700.00	1,439.00	7,970	482	158.4	3	1	2	37	..	..
27	Meadow Brook shaft colliery, ...	152,002.00	130,980.00	5,000.00	16,713.00	6,900	257	215.3	..	..	..	38	..	..
28	Meadow Brook tunnel colliery, ...	29,093.00	28,678.00	415.00	..	967	41	208.25	..	..	..	4	1	35
29	National shaft and slope colliery, ...	73,019.00	65,328.00	6,250.00	1,441.00	5,737	274	208.25	..	..	..	27	..	..
30	Stannard shaft colliery, ...	22,420.00	21,210.00	1,180.00	..	1,120	49	208.25	..	..	..	..	..	..
31	Mount Pleasant shaft colliery, ...	204,473.00	173,570.00	7,300.00	21,200.00	9,281	483	214.12	2	..	..	51	1	58
32	Greenwood No. 1 shaft colliery, ...	141,120.05	129,114.00	7,300.00	4,706.05	8,219	376	215.9	3	3	5	29	..	..
33	Greenwood No. 2 shaft colliery, ...	136,965.30	175,006.30	17,000.00	1,959.00	9,028	501	211.9	3	3	15	94	1	90
34	Greenwood No. 3 shaft colliery, ...	60,310.14	55,810.14	4,500.00	..	2,582	192	217	..	..	..	31	..	..
35	Shaft No. 5, Dunmore colliery, ...	162,536.00	157,095.00	5,000.00	..	6,315	389	210.25	1	..	..	33	..	..
36	Bunker Hill drift colliery, ...	18,559.00	18,725.00	235.00	..	6,419	108	51.5	..	..	..	6	..	..
37	Old Forge shaft No. 1 colliery, ...	..	..	..	..	5,490	258	206.25	1	..	..	32	1	40
38	Old Forge shaft No. 2 colliery, ...	247,711.00	242,401.00	5,310.00	..	3,632	172	206.25	1	..	..	24	1	40

41	Jermyn No. 1 shaft, colliery, ...	170,501.18	158,899.15	8,000.00	3,722.03	6,309	469	192.2	1	. . .	. . .	. . .	47	. . .
42	Jermyn No. 2 shaft, colliery, ...	222,014.15	215,014.15	7,000.00	. . .	7,203	538	174.4	. . .	. . .	. . .	. . .	40	. . .
43	Providence C. Company shaft colliery, ...	37,127.00	31,155.00	1,800.00	1,172.00	1,772	103	164.6	. . .	. . .	. . .	. . .	40	. . .
44	Staley shaft colliery, ...	131,824.18	118,809.03	10,950.00	2,067.15	5,742	357	223.8	4	1	6	. . .	41	. . .
45	Spencer's shaft, colliery, ...	1,731.00			1,731.00	57	22	58	. . .	. . .	. . .	. . .	1	. . .
	Columbia Colliery Company, ...	18,530.00			18,530.00		8	178	. . .	. . .	. . .	. . .	. . .	. . .
	Tripp Local Coal Sales mines, ...	13,500.00			13,500.00		26	250	. . .	. . .	. . .	. . .	. . .	. . .
	Mountain Lake Land Coal Company, ...	3,200.00			3,200.00		6	100	. . .	. . .	. . .	. . .	1	. . .
	Total, †	3,245,572.37	2,947,720.36	168,123.12	129,725.03	128,086	7,831	203.3	24	8	34	885	7	328
	Grand totals, †	5,936,475.02	5,425,339.11	328,175.12	182,562.19	206,737	14,429	192.27	35	13	68	1,889	19	1,376

† In making these additions it will be observed, in some instances, the inspector used his fractions as twentieths of a ton, while in other places he used them as hundredths of a ton.

‡ Returned on Delaware, Lackawanna and Western Railroad Company report.

25	Capouse shaft colliery, ...	11	774	430	345	9	195,180	135,250	232,540	Two fans,	do.	15	October	do.
26	Pine Brook shaft colliery, ...	17	1,386	405	382	7	219,750	201,194	211,640	do.	do.	5	October 1, ...	do.
27	Wm. A. shaft colliery, ...	14	1,248	343	343	5	48,950	88,948	109,906	Fan, . .	do.	15	September 8 to 15, . .	do.
28	Meadow Brook shaft colliery, ...	10	542	205	205	4	72,900	70,050	75,850	do.	do.	17	September 6 to 16, . .	do.
29	Meadow Brook tunnel colliery, ...	2	50	39	39	1	38,600	35,000	42,700	Furnace,	do.	1	September 17, ...	do.
30	National shaft and slope colliery, ...	12	499	173	172	5	77,300	75,100	80,200	Fan, . .	do.	14	September 2, ...	do.
31	Stafford shaft colliery, ...	4	157	45	45	1	38,500	36,400	41,300	do.	do.	3	September 23, ...	do.
32	Mount Pleasant shaft colliery, ...	16	716	343	308	7	114,700	84,177	115,317	Two fans,	do.	14	September 20, ...	do.
33	Green Ridge slope colliery, ...	7	370	286	259	4	107,150	83,340	110,439	Fan, . .	do.	15	September 12, ...	do.
34	Greenwood No. 1 shaft colliery, ...	11	...	367	323	6	110,735	88,539	133,172	do.	do.	6	November 12, ...	do.
35	Greenwood No. 2 shaft colliery, ...	8	392	...	48	1	23,945	26,473	34,175	Furnace,	do.	10	do	do.
36	Greenwood No. 8 and 12 drifts colliery, ...	6	392	...	...	2	127,335	89,323	127,450	Fan, . .	do.	10	October 26, ...	do.
37	Shaft No. 3, Dunmore colliery, ...	4	328	76	74	2	37,350	30,640	22,450	do.	do.	8	October 16, ...	do.
38	Bunker Hill drift colliery, ...	10	475	286	265	4	77,680	64,765	111,650	Furnace,	do.	5	October 1, ...	do.
39	Old Forge shaft No. 2 colliery, ...	13	398	330	302	5	86,251	103,493	106,192	do.	do.	15	October 8, ...	do.
40	Old Forge shaft No. 1 shaft colliery, ...	9	720	392	302	6	98,150	77,890	97,180	do.	do.	13	October 29, ...	do.
41	Jermyn No. 1 shaft colliery, ...	13	221	146	145	3	51,875	25,000	102,190	do.	do.	6	do	do.
42	Jermyn No. 2 shaft colliery, ...	13	687	222	216	3	53,200	46,000	52,770	do.	do.	13	November, ...	do.
43	Providence C. Company shaft colliery, ...	12	436	...	...	...	...	...	63,550	do.	do.	11	do	do.
44	Sibley shaft colliery, ...	229	11,037	5,076	4,734	...	...	...	...	...	...	...	December, ...	do.
45	Spencer's shaft colliery, ...	480	25,944	8,939	8,164	...	...	...	...	...	...	...	...	...
Total + ...			11,037	5,076	4,734									
Grand total†, ...			25,944	8,939	8,164									

* Statistics returned on this sheet with Diamond No. 2.

† In making these additions it will be observed, in some instances, the inspector used his fractions as twentieths of a ton, while in other places he used them as hundredths of a ton.

‡ Returned on Delaware, Lackawanna and Western Railroad Company return.

TABLE NO. 3.—List of Accidents Resulting in Death Reported to the Inspector of the Second Anthracite District, and the Causes as Shown by His Investigations, for the Year Ending December 31, 1893.

Date, 1893.	Names.	Age.	Nationality.	Occupation.	Killed.	Widows.	Orphans.	Colliery Where Accident Occurred.	Nature and Cause of Accident.
Jan. 5.	Thomas Killeen. . .	23	Irish.	Laborer.	Killed.			Wm. A. breaker, Wm. Connelly & Co.	Killed; fell between platform and large railroad car at breaker schutes.
11.	Anthony Moore. . .	33	Polish.	do.	Died.	1	3	Greenwood No. 1 mine, Greenwood Coal Co.	Was thawing out some Atlas powder with his mining lamp when it exploded, injuring him so that he died five hours after.
13.	James Ruane. . . .	37	Irish.	Miner.	do.	1	6	Green Ridge slope mine, O. S. Johnson.	Seriously injured internally; two ribs fractured; died January 21; accident was caused by a fall of roof.
19.	Patrick Keegan. . .	70	do.	Road Cleaner. . .	Killed.	1		Green Ridge slope mine, O. S. Johnson.	Killed; run over by a car.
20.	William Mooney. . .	15½	do.	Driver.	do.			Old Forge No. 2 shaft mine, Penn'a Coal Co.	Killed; struck by a loaded car.
28.	Frank Sabbetti. . . .	16	Italian.	Door boy.	Died.			Jermyn No. 1 shaft mine, John Jermyn.	Seriously injured; he neglected to open his door, and a trip of cars crushed through the door and injured him so that he died in four days.
April 3.	Powell Sittone. . . .	27	Polish.	Laborer.	Killed.			Von Storen shaft mine, D. & H. Canal Co.	Killed; struck by a trip of cars on plane and injured him so that he died in four days.
11.	Michael Moleski. . .	25	do.	Miner.	Died.			Sibley shaft mine, Elliott, McClure & Co.	Killed; struck by a trip of cars on plane and injured him so that he died in four days.
12.	Patrick Nealon. . .	30	Irish.	do.	do.			Manville shaft mine, D. L. & W. R. Co.	he got caught by a trip of cars.
15.	Dominick Ituane. . .	60	do.	do.	Killed.	*		Continental shaft mine, D. L. & W. R. Co.	Seriously injured; shot through a pillar; died same night in Lackawanna hospital.
May 1.	Michael Rossi. . . .	23	Italian.	Laborer.	do.			Sibley shaft mine, Elliott, McClure & Co.	Seriously injured; premature explosion of a blast; died next day.
1.	Fidale Carew. . . .	27	do.	do.	do.			Sibley shaft mine, Elliott, McClure & Co.	Killed; fall of coal.
15.	Patrick McAndrew. .	60	Irish.	Miner.	do.			Shart No. 5, Dunmore mine, Penn'a Coal Co.	Killed; fall of top coal, in top vein.
20.	Edward G. Johns. . .	22	Welsh.	do.	do.			Dodge shaft mine, D. L. & W. R. Co.	Killed by the same fall of coal.
22.	William Barrett. . .	19	American.	Laborer.	Died.			Manville shaft mine, D. & H. Canal Co.	Killed; run over by cars on inside plane.
June 2.	Ryan Thomas. . . .	21	Welsh.	do.	Killed.			Bellevue shaft mine, D. L. & W. R. Co.	Killed; fall of coal and rock.
17.	Edward Gilroy. . . .	14	Irish.	Door boy.	Died.			Dodge shaft mine, D. L. & W. R. Co.	Seriously injured by accidentally lighting a squib in hole and firing the blast without warning.
									Killed; fall of top coal.
									Right arm crushed and both legs badly injured; struck by a trip of loaded cars; he was in the dark at the time.

July 11,	Thomas Brown, . .	38	English, . . .	Pumpman, . . .	Killed, . . .	1	6	Sibley shaft mine, Elliott, McClure & Co.	Killed; fall of roof; was sitting talking to a miner at his branch on main road at the mine of the fall.
14,	Joseph Katylus, . .	45	Polish, . . .	Laborer, . . .	Died, . . .	. . .	. . .	Canorse shaft mine, Lack'a I. & S. Co.	Seriously injured; fall of roof; died on the right of the day.
20,	James Douse, . . .	37	English, . . .	Miner, . . .	Killed, . . .	1	6	Continental shaft mine, D., L. & W. R. R. Co.	Killed; fall of honey coal.
Aug. 2,	James Yacks, . . .	24	Polish, . . .	Laborer, . . .	do.	. . .	. . .	Mount Pleasant shaft mine, Wm. T. Smith.	
2,	Joseph Frantz, . . .	19	do.	do.	do.	. . .	. . .	Mount Pleasant shaft mine, Wm. T. Smith.	Both of these men were killed by premature explosion of a blast.
8,	Charles Kardkirch, . .	17	do.	Driver, ...	Died, ...	. . .	. . .	Wm. A. shaft mine, Wm. Connell & Co.	Seriously injured; fall of roof; died on same night.
19,	Stanlas Naraki, . .	24	do.	Laborer, ...	do.	. . .	. . .	Von Storch shaft mine, D. & H. Canal Co.	Seriously injured; tried to jump on a moving trip of cars on the plane while the cars were in motion; he fell under the cars; he died in the hospital that night.
Sept. 27,	William Lydon, . . .	15	American, . .	Driver, ...	do.	. . .	. . .	Old Forge No. 1 shaft mine, Penn'a Coal Co.	Reported slightly injured on September 27, but he died on October 2; he was kicked by a mule.
Oct. 10,	Bernard Bulaskie, . .	32	Polish, ...	Laborer, ...	do.	1	5	Cent 1 shaft mine, D., L. & W. R. R. Co.	Fatally burned by an explosion of gas.
16,	John Herman, . . .	64	French, ...	Miner, ...	do.	. . .	7	Hyde Park shaft mine, D., L. & W. R. R. Co.	Head seriously injured; premature explosion of a blast; died on the night of the 17th.
21,	Michael Roche, . . .	47	Irish, ...	Shaft examiner, . . .	do.	. . .	3	Von Storch shaft mine, D. & H. Canal Co.	Seriously injured; caught under hoisting carriage in the shaft; died next morning.
Nov. 2,	John Adolske, . . .	33	Polish, ...	Laborer, ...	Killed, ...	1	4	Greenwood No. 1 shaft mine, Greenwood Coal Co.	Killed instantly; fall of roof.
3,	Thomas Spellman, . .	40	Irish, ...	Miner, ...	Died, ...	1	8	Greenwood No. 1 shaft mine, Greenwood Coal Co.	Back badly injured; fall of rock; died December 26.
18,	John Walsh, ...	31	do.	Laborer, ...	Killed, ...	1	3	Holden shaft mine, D., L. & W. R. R. Co.	Killed instantly; fall of roof.
Dec. 2,	James Mullen, . . .	48	do.	Miner, ...	do.	1	7	Sloan shaft mine, D., L. & W. R. R. Co.	Back broken; fall of top coal; lived about ten (10) minutes after the accident occurred.
9,	James J. Keegan, . .	33	do.	do.	do.	1	2	Green Ridge slope mine, O. S. Johnson.	Killed; premature explosion of a blast.
14,	Andrew Plaroskie, . .	33	Polish, ...	Laborer, ...	do.	1	2	Wm. A. shaft mine, Wm. Connell & Co.	Killed instantly; fall of roof.
19,	Oswalt Wagner, . .	33	German, ...	Miner, ...	do.	1	8	Hyde Park shaft mine, D., L. & W. R. R. Co.	Instantly killed; fall of roof; bell shaped.
		35				13	63		

*Grown up family.

Nationality—Irish, ...	13	37.14 per cent.
Poles, ...	11	31.43 do.
Italians, ...	3	8.58 do.
Welsh, ...	2	5.71 do.
Americans, ...	2	5.71 do.
English, ...	2	5.71 do.
German, ...	1	2.86 do.
French, ...	1	2.86 do.
Total, ...	35	100.00 per cent

Falls of roof and coal, ...	16	47.7 per cent.
Injured by cars, ...	6	17.14 do.
Injured by powder and blasts, . .	7	20.00 do.
Injured by gas explosions, ...	1	2.86 do.
Injured miscellaneous, ...	5	14.29 do.
Total, ...	35	100.00 per cent.

TABLE NO. 4—List of Non-Fatal Accidents reported to the Inspector of the Second Anthracite District, and the Causes as shown by his Investigation, for year ending December 31, 1893.

Date.	Name.	Age.	Nationality.	Occupation.	Injured.	Name of Colliery Where Accident Occurred.	Nature and Cause of Accident in Brief.
Jan. 4,	John Day, ...	33	Irish, ...	Miner, ...	Injured,	Cayuga shaft mine, D., L. & W. Railroad Co.,	Slightly injured; coal slipped off a pillar and caught him.
6,	John Reap, ...	15	do.	Driver, ...	do.	Continental shaft mine, D., L. & W. R. R. Co.,	Left leg badly bruised, requiring several stitches; was riding on bumper of car with his foot sliding on rail; the heel of his shoe caught in a rail joint, throwing him in front of car; the car pushed him along the rail about thirty feet, causing the accident.
9,	Frank Kelly, ...	35	American, .	Company man,	do.	Diamond shaft mine, D., L. & W. R. R. Co., .	Leg crushed; was helping to put a car on the cage, when his leg was caught by another car bumping against it.
11,	John Rnaue, ...	39	do.	Miner, ...	do.	Pine Brook shaft mine, L. I. & S. Co., ...	Injured in back; fall of roof; he knew the roof was dangerous, but neglected to look down or secure it.
11,	Steven Yomekle, ...	19	Polish, . . .	Laborer, ...	do.	do. do. do.	Hands and face severely burned; explosion of gas; the place was clear of gas in the morning.
12,	Charles Abell, ...	38	English, . .	Miner, ...	do.	Bellevue shaft mine, D., L. & W. Railroad Co.,	Slightly injured; fall of roof.
14,	Bartley Mullen, ...	20	do.	Driver, ...	do.	Pine Brook shaft mine, L. I. & S. Co., ...	Gash on head, and leg bruised; fell in front of a car and it ran on him.
16,	William Green, ...	15	do.	Driver helper,	do.	Mt. Pleasant shaft mine, Wm. F. Smith & Co.,	Seriously injured; a mule.
20,	Lewis Bteler, ...	29	German, . .	Driver, ...	do.	Greenwood, No. 1 shaft mine, Greenwood C. Co.,	Injured; leg caught between bumpers of two loaded cars.
21,	Patrick Barrett, ...	16	American, .	do.	do.	Meadow Brook shaft mine, Wm. Connell & Co.,	Arm cut; struck by a piece of coal flying from a blast.
23,	John R. Jones, ...	17	Welsh, . . .	Runner, ...	do.	Continental shaft mine, D., L. & W. R. R. Co.,	Arm fractured; was in the act of picking up the stretcher when he fell and fractured his arm.
24,	John Christ James, . . .	39	German, . .	Miner, ...	do.	do. do. do.	Back seriously injured; fall of rock from roof.
25,	Andrew Judge, ...	31	Irish, ...	do.	do.	Oxford shaft mine, D., L. & W. Railroad Co., .	Right leg fractured below the knee; fall of top coal.

28,	James Mulroy, ...	54	do.	do.	Hampton shaft mine, D., L. & W. R. R. Co., . .	Seriously injured; fall of roof in Rock Vein.
30,	John Conway, ...	25	do.	do.	Dodge shaft mine, D., L. & W. Railroad Co., .	{ These men were working together, loading a car with coal in chamber, when a piece of top coal fell on them without warning, slightly injuring both of them.
30,	Alex. Mojeski, ...	22	Polish. . . .	Laborer, . . .	do.	
Feb. 1,	John Brown, ...	25	Irish, ...	Footman, . . .	National shaft mine, D., L. & W. Railroad Co.,	Burned; was fooling round a keg of powder; when it exploded: a spark from his lamp fell into a keg of powder and burned his back and arm.
6,	John Edwards, ...	65	Welsh, ...	Miner, ...	Jermyn. No. 1 shaft mine, D., L. & W. R. R. Co.,	Burned by an explosion of powder.
6,	Thomas Morgan, ...	52	do.	do.	Capouse shaft mine, L. I. & S. Co., ...	Head and shoulder injured; fall of rock.
10,	Joseph Wenschick, . .	27	Polish, ...	Outside laborer	Archbald shaft mine, D., L. & W. Railroad Co.,	Some ribs fractured; fell from a plank while in the act of wheeling coal into a gondola.
10,	John Fraboski, ...	22	do.	do.	Dodge shaft mine, D., L. & W. Railroad Co., .	Leg slightly injured; caught between two shafts of mine cars.
10,	Samuel Sarantowski, .	44	do.	do.	Bellevue slope mine, D., L. & W. Railroad Co.,	Leg and shoulder bruised; fall of rock roof.
13,	James Foneski, ...	30	do.	do.	Dodge shaft mine, D., L. & W. Railroad Co., .	Right leg fractured between knee and ankle; fall of slate roof.
14,	James Powell, ...	34	Welsh, ...	Miner, ...	Dickson shaft mine, D. & H. Coal Co., ...	Right leg fractured and left foot badly cut; fall of roof.
15,	Edward Fassold, ...	15	American, . .	Driver, ...	Greenwood shaft mine, G. Coal Co., ...	Leg fractured below the knee; caught in mule harness.
17,	James Saul, ...	15	Irish, ...	Door boy, . . .	Mount Pleasant shaft mine, William T. Smith,	Compound fracture of thigh; struck by a rope at head of slope in mines.
17,	Morgan Llewellyn, . .	16	Welsh, ...	Driver, ...	Sloan shaft mine, D., L. & W. Railroad Co., .	Leg slightly injured; caught between bumpers of cars.
17,	James Nelson, ...	37	Irish, ...	Fire boss, . . .	Green Ridge slope mine, O. S. Johnson, ...	Burned badly on face and hands by an explosion of gas.
18,	Bert Barrier, ...	18	American, . .	Drivers helper,	Pyne shaft mine, D., L. & W. Railroad Co., . .	Shoulder blade fractured; caught between car and rib; was riding on front bumper of car and got caught in it.
18,	Andrew Kronick, ...	32	Hungarian, . .	Laborer, ...	Green Ridge slope mine, O. S. Johnson, ...	Right arm fractured; car struck him.
March 1,	George A. Thomas, . . .	16	Welsh, ...	Driver, ...	Diamond Tripp shaft mine, D., L. & W. R. Co.,	Arm fractured; fell under a car and a timber ran over it.
6,	Michael Martin, ...	45	Irish, ...	Miner, ...	do. do. do.	do.
8,	John Saul, ...	17	do.	Runner, ...	Mount Pleasant shaft mine, William F. Smith,	do.
10,	William Hoolehan, . . .	15	English, . . .	Door boy, . . .	Manville shaft mine, D. & H. C. Co., ...	One bone of leg fractured; fell under a car.
13,	David W. Morgan, . . .	45	Welsh, ...	Miner, ...	Pine Brook shaft mine, L. I. & Steel Co., . . .	Flesh wound on arm; a runaway car ran through his door; it was broken and it caught the boy.
16,	Michael Calkin, ...	22	Irish, ...	Company man,	Capouse shaft mine, L. I. & Steel Co., ...	Face and hands slightly burned: a spark fell from his lamp wick into a cartridge of powder he had in his hand and it exploded.
18,	John C. Thomas, ...	35	Welsh, ...	Miner, ...	Manville shaft mine, D. & H. Canal Co., . . .	Slightly injured; caught between two mine cars.
22,	William W. Hopkins, . .	28	do.	do.	Sloan shaft mine, D., L. & W. Railroad Co., .	Injured slightly; cut under the eye; struck by a stone.
25,	Arthur Jones, ...	16	do.	Driver, ...	Jermyn. No. 1 shaft mine, John Jermyn, . . .	Head seriously injured; fall of rock.
28,	John Purcel, ...	45	Irish, ...	Miner, ...	Von Storch 14 ft. vein, D. & H. C. Co., ...	Arm fractured; ran over by a car. Left leg fractured; fall of top coal.

TABLE No. 4—Continued.

Date.	Names.	Age.	Nationality.	Occupation.	Injured.	Name of Colliery Where Accident Occurred.	Nature and Cause of Accident in Brief.
March 29,	John Mundo, ...	35	Hungarian,	Laborer, . .	Injured.	Taylor shaft mine, D., L. & W. Railroad Co., .	Injured: was riding on car in slope and got caught between car and rib.
April 4,	Thomas Hughes, ...	18	Irish, ...	Driver, ...	do.	Diamond shaft mine, D., L. & W. Railroad Co.,	Hand injured: kicked by a mine, jumped back, fell and he fractured his leg.
4,	Thomas Reese, ...	15	American, .	do.	do.	Pine Brook shaft mine, L. I. & Steel Co., . . .	Slightly injured: caught between ear and pillar and got squeezed.
10,	John Grady, ...	35	Irish, ...	Miner, ...	do.	Manville shaft mine, D., L. & W. Railroad Co.,	Left arm and right foot and face and neck slightly burned; explosion of a powder cartridge he had in his hands.
11,	Anton Sikvin, ...	37	Polish, . . .	Laborer, . . .	do.	Sibley shaft mine, E. Mc Clure & Co., ...	Slightly injured; shot through a pillar.
12,	Patrick C. Gibbons, . .	50	Irish, ...	Miner, ...	do.	Caponise shaft mine, L. I. & Steel Co., ...	Leg fractured; fall of rock; a piece rolled on his leg and fractured it.
12,	Patrick Walsh, ...	36	do	Laborer, . . .	do.	Manville shaft mine, D., L. & W. R. R. Co., .	Slightly injured on back: struck by rocks flying from premature explosion of a blast.
15,	Anthony Poluski, ...	33	Polish, . . .	do.	do.	Continental shaft mine, D., L. & W. R. R. Co.,	Back injured: no bones broken; fall of coal.
15,	James Thornton, ...	26	Irish, ...	Miner, ...	do.	Greenwood, No. 2 drift, Greenwood C. Co., . .	Slightly injured about the body: fall of bony coal.
18,	Michael Moleski, ...	..	Italian, . . .	Laborer, . . .	do.	Sibley shaft mine, E. McClure & Co., ...	Injured: struck by coal flying from a blast in next chamber: came through cross cut.
18,	Michael Horan, ...	64	Irish, ...	do.	do.	Brislin shaft mine, D., L. & W. Railroad Co.,	Body injured: knocked down by a rim-away cut.
19,	Patrick Sheridan, ...	56	do.	Miner, ...	do.	Bellevue shaft mine, D., L. & W. Railroad Co.,	Injured on body, arm and leg: no bones broken; premature explosion of a blast.
22,	Thomas Campbell, ...	17	American, .	Door boy, . . .	do	Caponise shaft mine, L. I. & Steel Co., ...	Squeezed above the knee: foot caught in stretcher; fell in front of car.
25,	Dennis O'Brien, ...	30	Irish, ...	Laborer, . . .	do.	Cayuga shaft mine, D., L. & W. Railroad Co., .	Nose broken: struck by a piece of coal falling from rib.
May 1,	John Staff, ...	17	English, . . .	Driver, ...	do.	Old Forge, No. 1 shaft mine, Penn'a Coal Co., .	Leg fractured; caught between ears.
8,	William Reese, ...	19	Welsh, . . .	Runner, ...	do.	Dodge shaft mine, D., L. & W. R. R. Co., . . .	Left arm fractured; fall of rock while in the act of hitching his mine.

6,	Jacob Morgan, ...	45	do.	Miner, ...	do.	Dodge shaft mines, D., L. & W. R. R. Co., . . .	Face and hands slightly burned; explosion of gas.
8,	George Shorman, . . .	15	German, . . .	Driver, ...	do.	Caruga shaft mine, D., L. & W. Railroad Co.,	Slightly injured; kicked by a mule.
8,	Charles Schroeder, . .	15	do.	do.	do.	Brisbin shaft mine, D., L. & W. R. R. Co., . .	Seriously injured in main gangway; squeezed between cars.
9,	James McNamara, . .	15	Irish, . . .	Drivers helper,	do.	Capouse shaft mines, Lackawanna I. & S. Co.,	Little finger of left hand cut off; caught between sprag and car-bumper.
10,	John Heggins, ...	14	do.	do.	do.	Oxford shaft mines, D., L. & W. R. R. Co., . .	Leg fractured between ankle and knee; fell in front of an empty car.
15,	Peter Smyth, ...	25	Polish, . . .	Laborer, ...	do.	Dickson shaft mines, D. & H. Canal Company,	Head badly cut; fall of roof.
15,	Tim Rafferty, ...	16	Irish, . . .	Driver, ...	do.	Sibley shaft mines, E. McClure & Co., ...	Leg fractured; a runaway car knocked out a prop and it fell on his leg.
17,	Martin Hagerty, . . .	34	do.	Laborer, ...	do.	Sloan shaft mines, D., L. & W. R. R. Co., . .	Head cut and foot slightly bruised; fall of roof.
25,	James McNulty, . . .	15	do.	Door boy, ...	do.	Brisbin shaft mines, D., L. & W. R. R. Co., . .	Arm fractured; slipped and fell on rail while in the act of playing with other boys.
26,	Thomas Kennedy, . . .	27	do.	Laborer, ...	do.	Hampton shaft mines, D., L. & W. R. R. Co.,	Scalded from feet to hips; fell in a tank of hot water at boiler house outside.
26,	John Spealskile, . . .	40	Polish, . . .	do.	do.	William A. shaft mines, William Connell & Co.,	Hips squeezed and injured; caught between large railroad cars at breaker.
29,	John Belitt, ...	40	Hungarian, .	do.	do.	Archbald shaft mines, D., L. & W. R. R. Co., .	Leg fractured below the knee; fall of roof.
1,	Henry Moes, ...	42	English, . . .	Miner, ...	do.	Capouse shaft mines, Lackawanna I. & S. Co.,	Leg fractured; fall of coal in cross-cut.
1,	John Reese, ...	16	Welsh, . . .	Driver, ...	do.	Diamond shaft mines, D., L. & W. R. R. Co., .	Body and leg squeezed; caught between car and stretcher.
3,	Roland Watkins, . . .	19	do.	Footman, ...	do.	Mount Pleasant shaft mines, Wm. T. Smith, . .	Head slightly injured; a piece of coal fell down the shaft from the surface.
5,	Bert Knapp, ...	30	American, . .	Miner, ...	do.	Manville shaft mines, D., L. & W. R. R. Co., .	Squeezed; caught by a piece of black-head rock falling on him.
10,	William Coburn, . . .	43	English, . . .	Contractor, . . .	do.	Hampton shaft mines, D., L. & W. R. R. Co.,	Injured slightly; fell amongst loose coal in his chamber.
13,	Evan Edwards, . . .	47	Welsh, . . .	Miner, ...	do.	Sloan shaft mines, D., L. & W. R. R. Co., . .	Seriously injured on head and breast; premature blast.
15,	Andrew Pilco, ...	26	Polish, . . .	Laborer, ...	do.	Austin tunnel mines, Austin Coal Company, . .	Left knee-joint dislocated; fall of top bone coal.
17,	Patrick Flanigan, . .	24	Irish, . . .	Miner, ...	do.	Dodge shaft mines, D., L. & W. R. R. Co., . .	Little finger cut off; fall of slate roof.
17,	Isaac Evans, ...	16	Welsh, . . .	Drivers helper,	do.	Bellevue shaft mines, D., L. & W. R. R. Co., .	Nose and upper lip split; kicked by a mule.
17,	George Stevens, . . .	15	do.	do.	do.	do.	Leg and ankle squeezed; caught by shaft in car-wheel.
23,	William B. Thomas, . .	59	do.	Miner, ...	do.	Hyde Park shaft mines, D., L. & W. R. R. Co.,	Slightly injured about face and shoulders; fall of roof.
24,	Edward Jackson, . . .	25	Irish, . . .	do.	do.	Von Storch slope mines, D. & H. Canal Co., . .	Back and legs bruised by a fall of roof while in the act of resanding props.
24,	John Bortos, ...	17	German, . . .	Driver, ...	do.	Holden shaft mines, D., L. & W. R. R. Co., . .	Slightly injured; kicked in ribs by a mule.
27,	George Watson, . . .	40	Scotch, . . .	Miner, ...	do.	Manville shaft mines, D., L. & W. R. R. Co.,	Right hand cut and slightly bruised on head, face and hips.
27,	William Jernan, . . .	64	Welsh, . . .	do.	do.	Continental shaft mines, D., L. & W. R. R. Co.,	Wrist slightly injured; struck by flying coal from blast.
27,	John C. Hefrou, . . .	45	Irish, ...	do.	do.	Meadow Brook tunnel mines, Wm. Connell & Co.,	Arm fractured and body injured; fall of top coal.

TABLE NO. 4—Continued.

Date.	Names.	Age.	Nationality.	Occupation.	Injured.	Name of Colliery Where Accident Occurred.	Nature and Cause of Accident.
June 21,	Henry Lawrence, . . .	21	Welsh, . . .	Driver, ...	Injured.	Cayuga shaft mines, D., L. & W. R. R. Co., . .	Leg fractured; struck by a trip of loaded ears in Clark vein.
30,	Edward Jones, ...	41	do. . . .	Miner, ...	do.	Bellevue shaft mines, D., L. & W. R. R. Co.,	Head and back badly cut; fall of loose coal.
July 1,	John Judge, ...	15	Irish, ...	Door boy, ...	do.	Green Ridge slope mines, O. S. Johnson, ...	Squeezed slightly on right side; caught between empty car and wall of roof.
1,	Michael Gilboy, ...	34	do.	Miner, ...	do.	Cayuga shaft mines, D., L. & W. R. R. Co., . .	Highly bruised on face and hands; slightly injured on fall of roof.
3,	Walter Mathews, . . .	19	American, . .	Driver, ...	do.	Manville shaft mines, D. & H. Canal Co., . . .	Explosion of gas.
8,	Peter Connor, ...	17	Irish, ...	do.	do.	Arehbold shaft mines, D., L. & W. R. R. Co.,	Arm fractured between elbow and wrist; caught between ear and wall of breaker at schutes.
12,	David Richards, ...	35	Welsh, ...	Miner, ...	do.	William A. shaft mines, William Connell & Co.,	Leg fractured below the knee; fall of roof.
17,	David Parry, ...	47	do.	do.	do.	Confidential shaft mines, D., L. & W. R. R. Co.,	Ankle fractured; car jumped the track and caught him.
17,	John Muhlady, ...	30	American, . .	do.	do.	Taylor shaft mines, D., L. & W. R. R. R. Co., . .	Leg fractured; fall of roof.
21,	Patrick Roche, ...	26	do.	Footman, ...	do.	Jermyn No. 2 shaft mines, John Jermyn, ...	Leg badly bruised; struck by loaded car at foot of shaft.
22,	John Wells, ...	48	English, . . .	Miner, ...	do.	Bellevue shaft mines, D., L. & W. R. R. Co.,	Slightly cut and bruised; fall of roof was in the act of knocking out a prop roof fell on him.
22,	David J. Powell, ...	..	do.	do.	do.	do. do. do.	Small bone of leg fractured by same fall of roof.
25,	Stephen Davis, ...	15	Welsh, ...	Door boy, ...	do.	Dodge shaft mines, D., L. & W. R. R. Co., . .	Small bone of left foot fractured and also two ribs; caught by cars.
26,	John Polaski, ...	29	Polish, ...	Laborer, ...	do.	Cayuga shaft mines, D., L. & W. R. R. Co., . .	Leg fractured at ankle by car.
27,	Thomas McAndrew, . .	17	American, . .	Driver, ...	do.	Manville shaft mines, D. & H. Canal Co., . . .	Arm fractured at wrist and scratched on back and side; fell under a car.
27,	Orvie Dewow, ...	15	do.	do.	do.	Cayuga shaft mines, D., L. & W. R. R. Co., . .	Internally injured; kicked by a mile.
27,	Eban Williams, ...	16	Welsh, ...	do.	do.	Bellevue slope mines, D., L. & W. R. R. Co., . .	Leg badly cut; caught between ear and door.
29,	Thomas Quinnan, . . .	69	Irish, ...	Company man, . .	do.	Sloan shaft mines, D., L. & W. R. R. Co., . . .	Shoulders and back slightly injured; fall of roof.
August 1,	Martin Early, ...	23	do.	Footman, ...	do.	Von Storch slope mines, D. & H. Canal Co., . .	Hand seriously injured; caught between cars.

1,	William Tigue, . . .	17	American, . .	Driver, . . .	do.	Manville shaft mines, D. L. & W. R. R. Co.,	Leg badly bruised; wheel of car ran over it.
2,	Edward Mowson, . . .	30	English, . . .	Miner, . . .	do.	Mount Pleasant shaft mines, Wm. T. Smith,	Seriously injured by a premature explosion of gas.
7,	Mike Strippick, . . .	23	Polish, . . .	Laborer, . . .	do.	Jermyn No. 2 shaft mines, John Jermyn,	Slightly injured; fall of roof.
16,	Daniel Green, . . .	22	English, . . .	do.	do.	Diamond shaft mines, D. L. & W. R. R. Co.,	Back slightly injured; fall of roof.
23,	Michael Gaughan, . . .	33	Irish, . . .	Miner, . . .	do.	Pine Brook shaft mines, L. I. & C. Co., . . .	Head cut and otherwise injured; premature explosion of a blast.
29,	John Guricki, . . .	30	Polish, . . .	do.	do.	Jermyn No. 2 shaft mines, John Jermyn, . . .	{ Both of these persons slightly burned; explosion of gas.
29,	Frank Guricki, . . .	28	do.	Laborer, . . .	do.	do.	{ Both of these persons slightly burned; explosion of gas.
29,	Henry Granville, . . .	33	English, . . .	Miner, . . .	do.	Meadow Brook shaft mines, Wm. Connell & Co.,	{ Both of these persons slightly burned; explosion of gas.
29,	John Granville, . . .	33	do.	Laborer, . . .	do.	do.	{ Both of these persons slightly burned; explosion of gas.
4,	Thomas Malloy, . . .	21	American, . .	Runner, . . .	do.	Dickson shaft mines, D. & H. Canal Co., . . .	Leg fractured; a car jumped the track and struck it.
5,	James Davis, . . .	41	Welsh, . . .	Miner, . . .	do.	Bellevue slope mines, D. L. & W. R. R. Co.,	Toes mashed; fall of roof.
5,	Michael Reap, . . .	49	Irish, . . .	do.	do.	Von Storch slope mines, D. & H. Canal Co., . .	Right leg fractured, cut on head and body; fall of bony coal.
6,	Eddy Ruane, . . .	37	do.	Laborer, . . .	do.	Manville shaft mines, D. & H. Canal Co., . .	Toes on right foot mashed; fall of black rock.
8,	Jacob Reese, . . .	15	Welsh, . . .	Drivers helper, . .	do.	Pyne shaft mines, D. L. & W. R. R. Co., . .	Kicked on forehead by a mule while driving him out of the stable.
8,	Michael Yavich, . . .	23	Austrian, . .	Footman, . . .	do.	Sloan shaft mines, D. L. & W. R. R. Co., . .	Breast and back seriously injured; caught between car and post at breaker.
8,	Patrick Smith, . . .	32	Irish, . . .	do.	do.	Hyde Park shaft mines, D. L. & W. R. R. Co.,	Head and foot slightly injured; caught by cars.
8,	John Seamans, . . .	22	American, . .	do.	do.	do.	Body and head slightly injured; caught by cars.
9,	James Ward, . . .	46	do.	Prop cutter, . .	do.	do.	Injured by body of dumping car falling back and catching him.
21,	James Carroll, . . .	25	Irish, . . .	Miner, . . .	do.	Von Storch slope mines, D. & H. Canal Co., . .	Back severely bruised, and head slightly bruised; fall of top rock.
23,	Patrick Giggallon, . .	35	do.	Laborer, . . .	do.	Cayuga shaft mines, D. L. & W. R. R. Co., . .	Head slightly bruised; fall of slate.
25,	James D. Davis, . . .	47	Welsh, . . .	Miner, . . .	do.	Sloan shaft mines, D. L. and W. Railroad Co.,	Head slightly bruised; fall bony coal.
26,	John Koneczy, . . .	25	Polish, . . .	Laborer, . . .	do.	do.	Back severely injured by same fall.
26,	Patrick Ruddy, . . .	32	Irish, . . .	Miner, . . .	do.	Green Ridge slope mines, O. S. Johnson, . . .	Face and hands slightly burned; explosion of gas.
October 3,							
3,	David J. Davis, . . .	16	Welsh, . . .	Driver, . . .	do.	Hampton shaft mines, D. L. and W. R. R. Co.,	Slightly injured; caught between car and pillar.
5,	Peter Olson, . . .	32	Swedish, . .	Miner, . . .	do.	Hyde Park shaft mine, D. L. and W. R. R. Co.,	Head cut; fall of roof while in the act of retarding a prop which was knocked out by a blast.
6,	James Duffy, . . .	55	Irish, . . .	do.	do.	Brisbin shaft mine, D. L. and W. R. R. Co., .	Left leg mangled; fall of roof while standing in prop.
6,	Edward B. Kelly, . .	60	do.	do.	do.	Pine Brook shaft mine, L. I. and Steel Co., . .	Collar bone and ribs fractured; premature explosion of a blast.
6,	Abraham Morgan, . .	55	Welsh, . . .	do.	do.	Von Storch Rock Vein mines, D. & H. Canal Co.,	Cut over left eye; fall of rock.
7,	William Evans, . . .	15	do.	Driver, . . .	do.	Bellevue shaft mines, D. L. and W. R. R. Co.,	Hips severely squeezed; caught between door and cars.
10,	Richard A. Lewis, . .	31	do.	Miner, . . .	do.	Central shaft mines, D. L. and W. R. R. Co.,	{ These men are badly burned by an explosion of gas.
10,	James Griffiths, . . .	35	do.	Laborer, . . .	do.	Jermyn No. 1 shaft mine, John Jermyn, . . .	Leg fractured; fall of a slab of rock.
12,	Frank Mori, . . .	25	Italian, . . .	do.	do.	Diamond shaft mines, D. L. and W. R. R. Co.,	Head and chest slightly squeezed between car and rib.
12,	Thomas F. Thomas, . .	18	American, . .	Driver, . . .	do.	do.	Wrist slightly injured; fall of coal.
12,	Jerry Simmons, . . .	39	Welsh, . . .	Miner, . . .	do.	Green Ridge slope mines, O. S. Johnson, . . .	Hands and face slightly burned; explosion of gas.
14,	John Mooney, . . .	30	Irish, . . .	do.	do.		

Sept.

October

TABLE NO. 4—Continued.

Date.	Names.	Age.	Nationality.	Occupation.	Injured.	Name of Colliery Where Accident Occurred.	Nature and Cause of Accident.
Oct. 17.	Bernard Barosino, . .	31	Italian, . . .	Laborer, . . .	Injured,	Meadow Brook shaft mines, Wm. Connell, . .	Seriously injured; shot through a pillar.
17.	Frank Sakprkwld, . .	24	Polish, . . .	do. . . .	do.	Jernyn No. 2 outside plane mines, John Jernyn, . .	Leg badly crushed on outside plane; a car ran over it.
18.	Joseph Carralus, . . .	40	do. . . .	Miner, ...	do.	Providence shaft mines, Providence Coal Co., . .	Leg fractured below the knee; caught between cars.
18.	John Lenshan, ...	15	Irish, ...	Door boy, ...	do.	Van Storch Rock Veln mines, D. & H. Canal Co., . .	Left leg fractured; caught between moving cars.
20.	John W. Morgan, . . .	62	Welsh, ...	Miner, ...	do.	Continental shaft mines, D. L. and W. R. R. Co., . .	Back slightly injured; fall of roof.
20.	Peter Vulcas, ...	35	Polish, ...	do. . . .	do.	Greenwood No. 1 shaft mines, G. Coal Co., . .	Slightly injured; fall of roof.
21.	William Haskins, . . .	25	Irish, ...	Runner, ...	do.	William A. shaft mines, Wm. Connell & Co., . .	Face and ear cut; caught between car and rock.
3.	John Smatovich, . . .	25	Polish, ...	Miner, ...	do.	Greenwood No. 1 shaft mines, G. Coal Co., . .	Both were slightly injured; fall of rock.
3.	Lake Vaorucaavis, . .	23	do. . . .	Laborer, ...	do.	do. . . .	do.
3.	Joseph Cowelunas, . .	27	do. . . .	do. . . .	do.	Von Storch shaft mines, D. & H. Canal Co., . .	Cut on head while wandering through the mines; a thin slab fell on him.
8.	Owen T. Hughes, . . .	38	Welsh, ...	Fire boss, ...	do.	Greenwood No. 1 shaft mines, G. Coal Co., . .	Burned slightly by an explosion of gas while making his examination in the morning.
9.	Fred. Reese, ...	16	do. . . .	Driver, ...	do.	Diamond shaft mines, D. L. and W. R. R. Co., . .	Foot slightly injured; caught in latch of track.
10.	Thomas Murphy, . . .	36	Irish, ...	Miner, ...	do.	Hyde Park shaft mines, D. L. and W. R. R. Co., . .	Flesh wound on ankle of right foot; fall of top coal.
11.	James Carney, ...	30	do. . . .	Car runner, . . .	do.	Green Ridge slope mines, O. S. Johnson, . . .	Right leg bruised; caught while putting a car on the track.
11.	Thomas Itune, ...	22	do. . . .	Laborer, ...	do.	Pine Brook shaft mines, L. I. and Steel Co., . .	Leg fractured and back injured; fall of a slab of roof three inches thick.
15.	John Scott, ...	35	do. . . .	Miner, ...	do.	Sloan shaft mines, D. L. and W. Railroad Co., . .	Some bones in foot fractured; fall of bony coal.
20.	Arthur Lake, ...	16	American, . . .	Driver, ...	do.	Diamond shaft mines, D. L. and W. R. R. Co., . .	Left leg injured below the knee; ran over by an empty car.
21.	Michael Judge, Jr., . .	18	do. . . .	do. . . .	do.	do. . . .	Leg fractured and back injured; tried to jump on bumper of car and fell under it.
24.	Wm. T. Smith, ...	24	English, ...	Miner, ...	do.	Pine Brook shaft mines, L. I. & Steel Co., . .	Internally injured; fall of rock.
24.	John Henry, ...	17	Welsh, ...	Driver, ...	do.	Caygen shaft mines, D. L. and W. Railroad Co., . .	Knees slightly injured; struck by a car.
25.	Richard Williams, . .	17	French, ...	do. . . .	do.	Hampson shaft mines, D. L. and W. R. R. Co., . .	Injured about hips and back; caught between car and rib.

27.	Evan Williams, . . .	15	Welsh, . . .	do.	do.	Dodge shaft mines, D. L. and W. Railroad Co.,	Two fingers cut off; fell in front of car and got caught.
27.	David Thomas, . . .	26	do.	Laborer, . . .	do.	do.	Face and hands severely burned; explosion of gas.
27.	Frank Pesker, . . .	23	Polish, . . .	do.	do.	Sloan shaft mines, D. L. and W. Railroad Co.,	Back slightly injured; fall of coal.
30.	Emanuel Therman, . . .	24	German, . . .	do.	do.	Taylor shaft mines, D. L. and W. Railroad Co.,	Left side injured; fall of roof.
30.	Martin McAndrew, . . .	37	Irish, . . .	Miner, . . .	do.	Dodge shaft mines, D. L. and W. Railroad Co.,	Back and hips seriously injured; fall of bony coal.
1.	William Daw, . . .	18	English, . .	Driver, . . .	do.	Jermyn No. 1 shaft mines, John Jermyn, . . .	Thigh fractured; fell off mule between mouth of slope and stable.
4.	Henry Bastion, . . .	29	Welsh, . . .	Driver boss, .	do.	Mount Pleasant shaft mines, Wm. T. Smith, .	Leg fractured; fell from front of a truck on the track and the truck ran over him.
12.	William R. Griffiths, . . .	25	do.	Miner, . . .	do.	Greenwood shaft mines, G. Coal Company, . .	Leg fractured in two places; fall of bony coal.
16.	John E. Evans, . . .	53	do.	do.	do.	Bellevue shaft mines, D. L. and W. R. R. Co.,	Injured on back; struck by a piece of coal flying from a blast.
18.	William White, . . .	60	English, . .	do.	do.	Jermyn No. 1 shaft mines, John Jermyn, . . .	Slightly injured; fall of top coal.
18.	Samuel Perichnees, . . .	23	Italian, . . .	do.	do.	Green Ridge slope mines, O. S. Johnson, . . .	Head and face cut; premature explosion of gas.
21.	Michael Darkin, . . .	34	Polish, . . .	do.	do.	Jermyn No. 2 shaft mines, John Jermyn, . . .	Back severely injured; fall of roof.
26.	Patrick Harv, . . .	42	Irish, . . .	Laborer, . . .	do.	Archbald shaft mines, D. L. and W. R. R. Co.,	Severely burned about the body, face and hands; he went into an old chamber against orders, although the word "danger" was marked on a rail at mouth of chamber.
27.	Abraham Hobbs, . . .	16	Welsh, . . .	Driver, . . .	do.	Cayuga shaft mines, D. L. and W. Railroad Co.,	Leg fractured; it got caught on rail and car wheel caught it.

There were 39 persons who had their legs fractured.
 There were 9 persons who had their arms fractured.
 There were 5 persons who had other bones fractured
 There were 15 persons who were burned by gas.
 There were 15 persons who were burned by powder
 There were 6 persons who were injured by mules.
 There were 84 persons who were otherwise injured

Total, 173

TABLE NO. 5.—*Showing the number of each class of employes at each colliery in the Second Anthracite District, during the year 1893.*

Name of Collieries.	Occupation of Persons Employed Inside.						Persons Employed Outside.						Grand total inside and out- side.	
	Inside foremen.	Miners.	Miners' laborers.	All company men.	Drivers and runners.	Door boys and helpers.	Total inside.	Outside foremen.	Blacksmiths and car- penters, engin- eers and firemen.	State pickers.	All other company men.	Surveyors, superin- tendents, bookkeepers and clerks.		Total outside.
Delaware, Lack. & W. R. R. Co.	1	122	122	38	51	10	344	1	16	106	57	...	180	524
	2	101	129	26	58	9	325	2	15	95	56	...	168	561
	1	20	20	13	12	2	68	...	...	...	...	...	...	...
	1	110	113	30	44	11	309	1	9	78	54	...	142	451
	1	108	108	33	68	5	323	1	19	86	38	...	144	467
	2	115	130	53	48	14	362	1	19	69	73	...	168	530
	1	111	111	33	48	11	320	1	10	80	69	...	160	480
	2	94	94	31	46	7	274	1	12	58	56	...	127	401
	2	130	146	31	37	22	368	1	21	63	77	...	162	530
	2	130	146	31	37	22	368	1	21	63	77	...	162	530
	2	130	146	31	37	22	368	1	21	63	77	...	162	530
	2	130	146	31	37	22	368	1	21	63	77	...	162	530
	2	130	146	31	37	22	368	1	21	63	77	...	162	530
	2	130	146	31	37	22	368	1	21	63	77	...	162	530
	2	130	146	31	37	22	368	1	21	63	77	...	162	530
	2	130	146	31	37	22	368	1	21	63	77	...	162	530
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2	130	146	31	37	22	368	1	21	63	77	...	162	530	
2	130	146	31	37	22	368	1	21</						

William A. shaft, ...	1	139	120	31	43	9	343	3	14	70	52	139	482
Meadow Brook shaft, ...	1	18	48	26	42	16	211	1	7	55	29	92	303
National shaft and slope, ...	1	73	12	9	5	7	39	1	1	2	2	41	274
Stafford shaft, ...	1	18	48	20	24	1	173	1	7	63	30	101	49
Mount Pleasant shaft, ...	2	111	18	33	64	1	345	1	1	1	3	142	485
Green Ridge slope, ...	1	100	100	25	50	10	286	1	5	80	56	90	376
Greenwood No. 1 shaft, &c., ...	3	134	130	50	40	10	307	1	14	59	60	134	501
Greenwood No. 5, 8 and 12 drifts, ...	1	42	42	15	16	5	121	1	6	35	29	71	192
Greenwood No. 2 shaft, ...	1	110	104	20	40	11	286	1	1	60	41	103	389
Bunker Hill drift, Dunmore, ...	1	34	34	2	3	2	76	2	2	15	13	32	108
Old Forge No. 1 shaft, ...	2	98	98	20	30	10	258	1	5	67	37	110	540
Old Forge No. 2 shaft, ...	1	62	63	18	20	8	172	1	5	56	56	169	499
Jermyn No. 1 shaft, ...	2	130	115	27	51	5	330	1	6	107	49	116	508
Jermyn No. 2 shaft, ...	2	150	140	38	54	8	392	1	6	30	17	49	185
Providence Coal Co. shaft, ...	1	67	10	29	30	9	146	1	1	100	35	141	363
Stidley shaft, ...	1	80	71	22	42	6	222	1	5	100	35	141	363
Totals, ...	31	2,003	1,806	635	907	223	5,605	22	124	1,146	819	2,111	7,716
Grand totals, ...	55	3,534	3,411	1,138	1,578	390	10,106	38	316	2,248	1,616	4,385	14,491



THIRD ANTHRACITE DISTRICT.

(LUZERNE AND SULLIVAN COUNTIES.)

Pittston, Pa., March 1, 1894.

Hon. Thos. J. Stewart, Secretary of Internal Affairs:

Sir: I have the honor herewith of presenting my annual report as Inspector of Mines of the Third Anthracite District for the year 1893. The total production of coal in this district was 5,629,914.19 tons. A decrease of 29,816 tons from that of 1892.

The number of fatal accidents was 64, leaving 30 wives widows and 100 orphans. The number of non-fatal accidents was 178, a number of which were of such a slight character as to cause those injured only a few days' suspension from work. The quantity of coal produced per life lost was 87,967 tons.

I am sorry to state that there has been an increase of 14 fatal accidents over those of 1892, which were caused principally by explosions of fire damp.

The number of days worked by the breaker was 186.33. The report contains the usual tables and a description of a few of the fatal accidents.

Yours respectfully,

H. McDONALD,
Inspector of Mines.

TONS OF COAL MINED DURING THE YEAR 1893.

Pennsylvania Coal Company, ...	1,315,966.00
Lehigh Valley Coal Company, ...	663,260.01
Delaware and Hudson Canal Company, ...	478,106.11
Delaware, Lackawanna and Western Railroad Company, ...	269,223.15
Butler Mine Company, ...	185,349.00
Newton Coal Company, ...	294,630.04
Waddell & Company, ...	141,983.02
Hillside Coal and Iron Company, ...	121,562.07
John C. Haddock, ...	234,501.14
Clear Spring Coal Company, ...	189,729.19
Florence Coal Company, ...	104,732.00
W. G. Payne & Company, ...	202,966.13

Abbott Coal Company, ...	10,000.00
Keystone Coal Company, ...	90,773.00
Avoca Coal Company, ...	79,447.07
Annora Coal Company, ...	88,225.00
John M. Robertson & Company, ...	53,044.00
Langcliffe Coal Company, ...	105,081.00
Stevens Coal Company, ...	78,442.03
Babylon Coal Company, ...	234,837.09
Mount Lookout Coal Company, ...	277,121.18
Hutchins & Company, ...	19,000.00
Wyoming Valley Coal Company, ...	108,781.00
State Line and Sullivan Railroad Company, ...	70,418.01
Old Forge Coal Mining Company, ...	200,532.12
Algonquin Coal Company, ...	5,247.00
Raub Coal Company, Limited, ...	6,953.03

Total, ... 5,629,914.19

Number of Fatal Accidents and Tons of Coal Produced per Life Lost.

Name of the Operators.	Number of lives lost.	Tons of coal mined per life lost.
Pennsylvania Coal Company, ...	6	219,327
Lehigh Valley Coal Company, ...	6	110,543
Delaware and Hudson Canal Company, ...		
Delaware, Lackawanna and Western Railroad Company, ...	6	44,870
Butler Mine Company, ...	3	61,783
Newton Coal Company, ...	1	294,630
Waddell & Company, ...	4	35,496
Hillside Coal and Iron Company, ...	1	121,562
John C. Haddock, ...	8	29,312
Clear Spring Coal Company, ...	3	63,243
Florence Coal Company, ...	2	52,366
W. G. Payne & Company, ...	4	50,741
Abbott Coal Company, ...	1	10,000
Keystone Coal Company, ...		
Avoca Coal Company, ...		
Annora Coal Company, ...		
John M. Robertson & Company, ...		
Langcliffe Coal Company, ...	2	52,540
Stevens' Coal Company, ...	5	15,688
Babylon Coal Company, ...	2	117,418
Mount Lookout Coal Company, ...	7	39,588
Hutchens & Company, ...		
Wyoming Valley Coal Company, ...	2	
State Line and Sullivan Railroad Company, ...		
Old Forge Coal Mining Company, ...	1	200,532

Number of Non-fatal Accidents.

Name of the Operator.	Number of persons injured.
Pennsylvania Coal Company, ...	26
Lehigh Valley Coal Company, ...	34
Delaware and Hudson Canal Company, ...	11
Delaware, Lackawanna and Western Railroad Company, ...	18
Butler Mine Company, ...	6
Newton Coal Company, ...	9
Waddell and Company, ...	2
Hillside Coal and Iron Company, ...	2
John C. Haddock, ...	12
Clear Spring Coal Company, ...	4
Florence Coal Company, ...	1
W. G. Payne and Company, ...	7
Abbott Coal Company, ...	
Keystone Coal Company, ...	11
Avoca Coal Company, ...	
Annora Coal Company, ...	
John M. Robertson and Company, ...	2
Langeliffe Coal Company, ...	3
Stevens Coal Company, ...	3
Babylon Coal Company, ...	2
Mount Lookout Coal Company, ...	9
Hutchens and Company, ...	
Wyoming Valley Coal Company, ...	9
State Line and Sullivan Railroad Company, ...	
Old Forge Coal Mining Company, ...	7

Number of Fatal and Non-fatal Injuries and Tons of Coal Produced per each Person Killed or Injured.

Name of the Operator.	Number killed or injured.	Tons of coal produced per person killed or injured.
Pennsylvania Coal Company, ...	32	41,124
Lehigh Valley Coal Company, ...	40	16,581
Delaware and Hudson Canal Company, ...	11	43,464
Delaware, Lackawanna and Western Railroad Company, ...	24	11,217
Butler Mine Company, ...	9	20,594
Newton Coal Company, ...	10	29,463
Waddell & Co., ...	6	23,664
Hillside Coal and Iron Company, ...	3	40,520
John C. Haddock, ...	20	11,725
Clear Spring Coal Company, ...	7	27,104
Florence Coal Company, ...	3	34,910

Number of Fatal and Non-fatal Injuries and Tons of Coal Produced per Person Killed or Injured—Continued.

Name of Operators.	Number killed or injured.	Tons of coal produced per person killed or injured.
W. G. Payne & Co., ...	11	18,451
Abbott Coal Company, ...	1	10,000
Keystone Coal Company, ...	11	8,252
Avoca Coal Company, ...		
Annora Coal Company, ...		
John M. Robertson & Co., ...	2	31,022
Langeliff Coal Company, ...	5	21,016
Stevens Coal Company, ...	8	9,805
Babylon Coal Company, ...	4	58,709
Mount Lookout Coal Company, ...	16	17,320
Hutchens & Co., ...		
Wyoming Valley Coal Company, ...	11	
State Line and Sullivan Railroad Company, ...		
Old Forge Coal Mining Company, ...	8	25,066

Classification of Fatal and Non-Fatal Accidents.

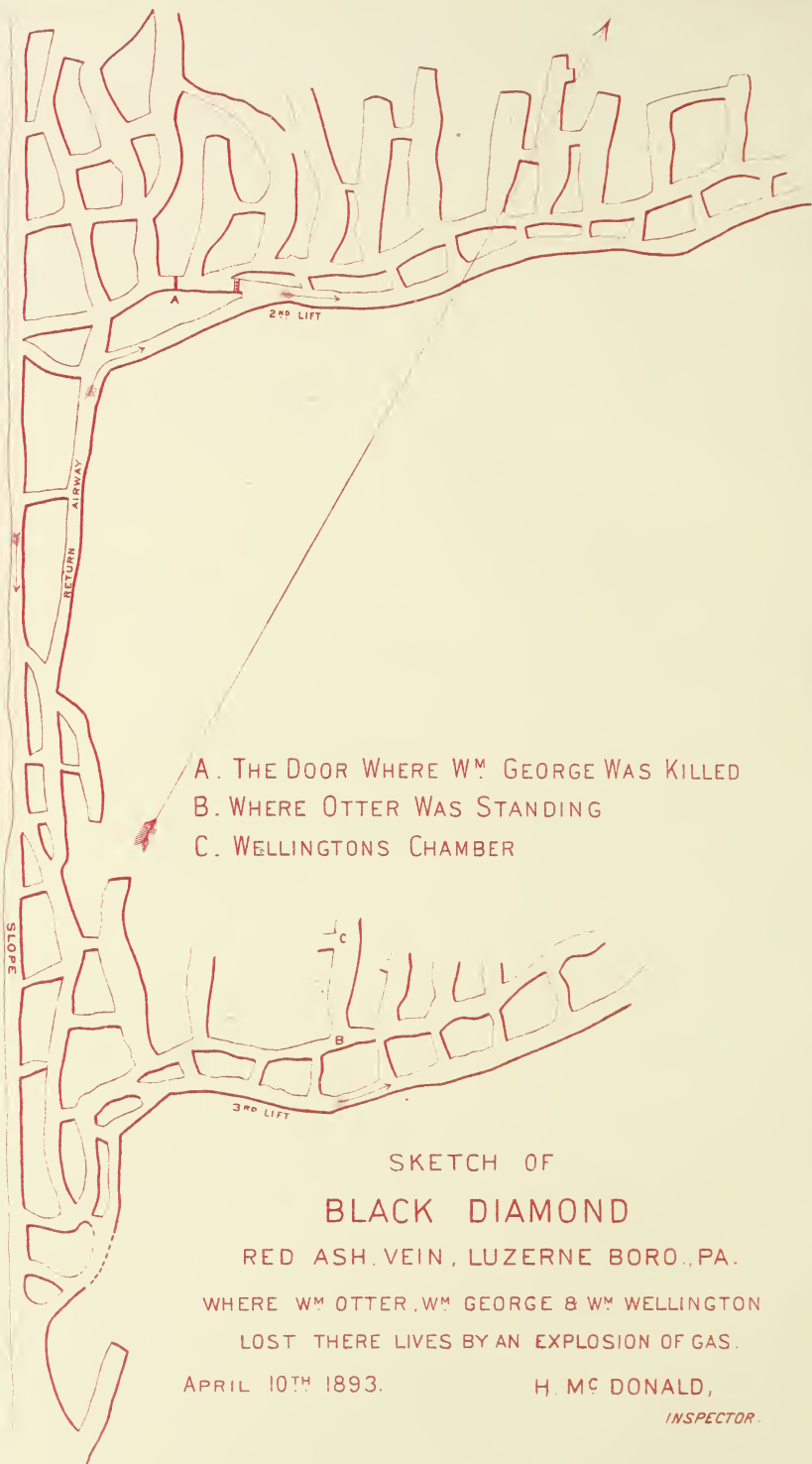
Cause of Accidents.	Killed or fatally injured.	Seriously and slightly injured.
By explosion of carburetted hydrogen gas, ...	11	43
By falls of roof and coal, ...	28	56
Crushed and run over by mine cars, ...	11	31
By falling down shafts, ...	2	
By explosions of powder and blasts, ...	3	20
By miscellaneous causes underground, ...	4	17
By miscellaneous causes on surface, ...	5	11
Total, ...	64	178

Occupation of Persons Killed or Injured.

	Killed.	Injured.
Miners, ...	16	76
Miners' laborers, ...	18	38
Drivers and runners, ...	11	24
Door boys and slate pickers, ...	7	11
Miscellaneous underground, ...	12	23
Miscellaneous on surface, ...		6
Total, ...	64	178

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BOUNDARY LINE



- A. THE DOOR WHERE WM GEORGE WAS KILLED
- B. WHERE OTTER WAS STANDING
- C. WELLINGTONS CHAMBER

SKETCH OF BLACK DIAMOND

RED ASH VEIN, LUZERNE BORO., PA.

WHERE WM OTTER, WM GEORGE & WM WELLINGTON
LOST THERE LIVES BY AN EXPLOSION OF GAS.

APRIL 10TH 1893.

H. MC DONALD,
INSPECTOR.

Nationality of Persons Killed or Injured.

	Irish.	Welsh.	American.	English.	Scotch.	German.	Swedes.	Hungarians.	Poles.	Italians.	Total.
Killed or fatally injured, ...	7	4	17	5	1	4	1	7	16	2	64
Injured, ...	34	14	32	21	6	10	4	12	44	1	178
Total, ...	41	18	49	26	7	14	5	19	60	3	242

Thirty widows; 100 orphans.

CONDITION OF THE MINES.

The condition of the mines is about the same as in last report in regards the general workings. The air being somewhat improved in a number of collieries by new ventilators having been erected, taking the place of the old ones, which did not give a sufficiently large volume of air. I am sorry to have to report an increase in the death list of this year, there having been 64 deaths from various injuries, which are enumerated in the tables of this report. Eleven of the above deaths were caused by explosions of gas. I find most of those explosions could have been avoided had the victims regarded the orders given them by those in charge.

There are only a few shafts in this district which do not give off more or less carburetted hydrogen gas, while some of them give it off to an alarming extent, necessitating large volumes of air to dilute and render it harmless. Therefore, it behooves all to pay the strictest attention to the orders given them, and not take the risk which I find is the cause of nine-tenths of the accidents.

I would say, in conclusion, that the majority of the miners who have to be contended with to day are not the competent miners of former years; men who were raised from boyhood through all the different grades of mining and timbering, which becomes necessary to make a good and careful miner. As two-thirds of the miners and laborers employed in the mines at present are late arrivals from Poland, Italy and Hungary, who have succeeded to the above employment, and not having those qualifications for a miner which are requisite for them to have before they can become safe and competent workmen.

DECRPTION OF ACCIDENTS.

Accidents No. 17, 18 and 19.

William George, miner, was instantly killed, and William Otter, laborer, and William Wellington, miner, fatally burned by an explosion of gas in the Black Diamond Colliery, Red Ash vein, on the morning of April 10, 1893. On the above morning, Wellington called at

the fire boss' station and asked the fire boss, John Rowett, the condition of his chamber. Rowett told him there was some gas in his place which would be removed by brattice, which he should put up as soon as he put the men to work. Wellington asked if there was sufficient gas to stop him from work, Rowett answering he did not think there was, and Wellington went to his work, which was in No. 3 lift in the slope, and proceeded up his chamber, first putting his light out and taking his coat, started to brush the gas out from the face. After brushing for some time and thinking he had dispelled the gas, he came down the chamber some distance and struck a match to light his lamp, igniting the gas and causing the explosion which burned him so severely that he died April 24. At the time of the explosion William Otter was on the gangway at the foot of Wellington's chamber, where he was so severely burned that he died on April 13.

William George was proceeding to his work, in company with a young man named William Kempt, and when about to pass through a door on the second lift, or lift above where the explosion occurred, Kempt opened the door and held it so that George might pass through. While in the act of stepping through the door the concussion from the explosion forced the door from Kempt's hand and struck George with such force as to throw him against the jamb of the door, breaking his neck. (See sketch of Black Diamond.)

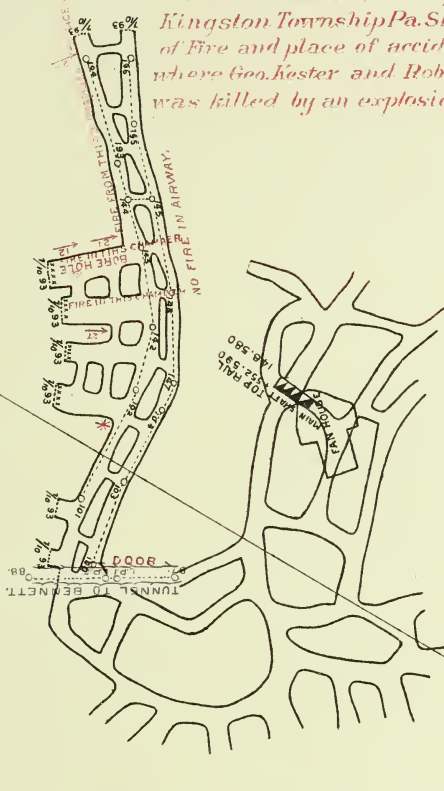
Had Wellington kept out of his chamber when he was told by the fire boss that there was gas in his chamber, instead of being in such a hurry to get to work and ignore the law which prohibits brushing to remove gas, in all probability he and the others would be alive to day.

Accidents Nos. 33 and 34.

George Kester, a runner, and Robert Hughes, a driver, were instantly killed by an explosion of fire-damp in the Cooper seam in the Pettibone shaft on July 12, 1893, and John Ford, Frank Houk and Peter Chesuesitch severely burned at the same time. This explosion was undoubtedly caused by the men themselves not closing the door on the airway. After bringing a car through and leaving it stand on the airway branch they went to bring out two cars that were in the heading. They got as far as the star (marked on sketch accompanying this), where they stopped to run down a slight grade with sprags, when the explosion occurred, the concussion forcing the cars on them with the above result. This portion of the workings gave off considerable gas, so that the fire boss frequently visited it during the day; he had visited this heading about a half hour previous to the explosion and failed to find any standing gas. The gas became ignited from the lamp of the laborer who worked in the heading, he having placed

PILLAR LINE.

1 - CANTON



* Place where Kester and Hughes was found.

PILLAR LINE.

LAND LINE.

THE CORNEY

BY THE

Author of "The Cornet"

it on the end of the brattice, as it was against orders to carry it on his head.

After attending to those killed and injured, and going back to make an examination, the mine was discovered to be on fire. A line of two-inch pipe was laid from the shaft to the fire and a stream of water kept on until the airway, which was under the water level, became submerged, thus cutting off the current of air and forcing the workmen out. It then became necessary to flood the mines and two large pumps were located on the bank of the Susquehanna river and the water pumped into the shaft. The workings of the lower or red ash seam had to be flooded and about 400 feet of the shaft was flooded before the water reached the Cooper seam.

On the morning of August 7 the water reached the Cooper seam and in a few days the water was between 150 and 200 feet above it, when the pumping was stopped. A six-inch bore hole was put down from the surface and the inside chamber was tapped to allow the compressed air to escape and let the water rise to the face of the chambers. The company had not started to pump the water from the shaft at this writing.

Accidents No. 39, 40 and 41.

John Wallace, assistant mine foreman, Robert Mould, fire boss, and Mathew Semeda, miner, were fatally, and Robert Saybolt, miner, severely burned by an explosion of fire-damp in the East Boston shaft, red ash vein, August 5.

On the above morning Semeda and Saybolt were working in an entrance between the airway and heading. (See sketch.) The fire boss went with them to see that no dangerous quantity of gas should accumulate in the entrance while they were at work, as a considerable quantity of gas had been given off. The men were working with safety lamps and expected to open the entrance that day, as the distance was short, and so allow the air current to circulate around the face; therefore, the fire boss sent all the men working on the gangway out of the mine until the entrance was finished. A blast was prepared in the morning and exploded, which ignited the gas which was exuding from the coal as "blowers," which was extinguished with difficulty. Another hole was drilled and prepared for blasting, but could not be fired on account of the gas. The men went around to the other side and drilled a hole through and found the distance to be about eight feet. At this time Wallace, the assistant foreman, came, and they proceeded to fire the blast already drilled and tamped, giving Saybolt the safety lamps to go down to the airway road. They started to brush out some gas that was in the face. They were arranged as seen in the sketch, and while busy brushing, the explosion occurred.

Undoubtedly the cause of the explosion was that when the gas became ignited from the previous blast, a small feeder was left burning unseen behind the brattice and the brushing brought the gas down in contact with it. The quantity of gas which exploded in the place was very small, but the place being narrow, the men received all there was of it, with no chance of escaping.

RECORD OF COLLIERY IMPROVEMENTS DURING 1893.

Pennsylvania Coal Company.

The new Barnum breaker, which was mentioned in my last report as being in course of construction, was completed and started to prepare coal for market in June, 1893. It is a large and commodious structure, having all the latest improved machinery.

At No. 7 colliery of this company a new air shaft, 12x12 feet, was sunk from the surface a distance of 331 feet to the checker seam, to be used for ventilation. A rock tunnel was also driven from the Pittston to the Marcy seam, a distance of 80 feet, for transportation of coal. In the Hoyt shaft a rock tunnel was driven from the Marcy to the Pittston vein, a distance of 480 feet, sectional area, 91 feet, to be used for the transportation of coal.

At No. 10 shaft a new exhaust fan, 20 feet in diameter was erected on the air shaft, in place of the one removed, it being too small; it will ventilate the workings of the red ash seam.

In No. 14 breaker an 8-foot fan was erected to take the coal dust from the breaker, which was greatly needed, as the coal coming to this breaker was very dry, so that the men and boys were terribly annoyed by the dust.

Lehigh Valley Coal Company.

This company has sunk an underground slope in their Oakwood shaft from the Checker to the red ash vein, a distance of 631 feet, on a grade of 30 degrees; sectional area, 10x13 feet. This slope opened up a large field of good coal in this vein, which is 14 feet in height.

In the Maltby Colliery the company has put in the "tail rope" system on their inside slope, which works very satisfactorily. A pair of first motion engines are situated close to the foot of the shaft which does the hoisting on the slope. The breaker has been rebuilt and enlarged, so that it will have a capacity of 1,500 tons of coal per day. The most approved machinery has been placed in it to clean and prepare the coal. An endless chain haulage, of about 500 yards in length, has been placed on the outside from the breaker to the shaft, which does away with all mules that were used heretofore.

A rock tunnel was driven in the Wyoming Colliery of this company from the five-foot to the Hillman seam, a distance of 195 feet, with a sectional area of 8x12 feet, to be used for transporting coal.

BLUE LINE OF BRALTISH.

- A. WHERE SEMEDA STOOD.
- B. WHERE WALLACE STOOD.
- C. WHERE MOULD STOOD.
- D. WHERE SAYBOLT HELD THE SAFETY LAMPS.

H. M^C DONALD,
INSPECTOR.



SKETCH OF
EAST BOSTON

RED ASH VEIN, LUZERNE BORO., PA.

WHERE MATHEW SEMEDA, JOHN WALLACE & ROBT MOULD
WERE FATALLY BURNED BY AN EXPLOSION OF GAS.

AUGUST 5TH 1893.

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Delaware and Hudson Canal Company.

By this company, Laurel Run Colliery, a rock tunnel was driven from the bottom split of the Baltimore to the Checker seam, a distance of 80 feet, with a sectional area of 12x6 feet, to be used for the transportation of coal.

Wyoming Valley Coal Company.

In the Forty-Fort shaft a rock slope, 8x14 feet was sunk from the 11-foot vein to the red ash, a distance of 525 feet, on a grade of 15 degrees. This slope opens up a large field of good coal for this company. A new Guibal fan, 20 feet in diameter, was placed on the air shaft to take the place of the one removed, it having been too small to give the ventilation required.

Keystone Coal Company.

A shaft 12x12 feet was sunk from the surface a distance of 375 feet to the red ash seam to be used for hoisting coal and ventilating the mine.

Raub Coal Company, Limited,

The Louise Colliery, owned and operated by this company, started in the month of September to prepare and ship coal to market. It is located northwest of the Mill Hollow Colliery in the borough of Luzerne. They have opened up the old drifts into the Ross and red ash seams, formerly operated by Thomas Waddell. A small breaker, having a capacity of 300 tons per day, was built to prepare the coal for market, and an air shaft was sunk from the Ross to the red ash seam, a distance of 45 feet, with a sectional area of 120 square feet, to ventilate the workings.

Hillside Coal and Iron Company.

This company has erected a new Guibal fan 14 feet in diameter at their new shaft to ventilate the workings, which exhausts 35,000 cubic feet of air while running 50 revolutions per minute.

Stevens Coal Company.

This company has sunk a new shaft 25x11 feet from the surface to the Pittston seam, a distance of 172 feet, to be used for hoisting coal. It is located south of the breaker, a distance of 500 yards from the slope opening, close to the borough of West Pittston. The coal from this shaft is taken by a small locomotive and hoisted up a plane to the breaker. The second opening was driven from the outcrop in the Checker seam down to the shaft level, a distance of 460 feet on a 4 degree pitch. A rock gravity plane has been started from the Pittston seam to be driven to the Checker above to complete the opening to the bottom. The distance to be driven will be 75 feet on a 20-de-

gree pitch. A new fan of the Guibal pattern, 20 feet in diameter, has been erected on one compartment of the hoisting shaft to furnish ventilation for both seams. It is run by a horizontal engine, cylinder 16x20 inches, directly connected.

Annora Coal Company.

This company has erected a new Guibal fan 16 feet in diameter on the second opening to the slope, which furnishes the workings with a large quantity of fresh air. It is run by a 28-horse power engine, directly connected to fan shaft. A new shaft, 25x11 feet, was sunk 45 feet to the Marcy vein. It is located on the bottom of the Pittston vein on the strippings of the vein.

W. S. Payne & Co.

At the East Boston Colliery a new Guibal fan, 25 feet in diameter, has been erected as a duplicate in case of an emergency. It is run by a horizontal engine, cylinder 20x36 inches, and exhausts 141,800 cubic feet of air with a water gauge of 2-10 inches running 60 revolutions per minute.

Robertson, Law & Co.

At the Katydid Colliery a new Guibal fan, 12 feet in diameter, has been erected on the second opening to the slope. It is run by a horizontal engine, cylinder 12x12 inches, and exhausts 34,000 cubic feet of air per minute, with a water gauge of 5-10 inch.

Mount Lookout Coal Company.

This company has erected a new Guibal fan, 20 feet in diameter, on their air shaft, as a duplicate to the other, and have them so arranged that by closing one door and opening another, which will only take a few minutes to do, either fan could be run. It is run by a horizontal engine, cylinder 16x30 inches, and directly connected to fan shaft.

John C. Haddock.

At the Black Diamond Colliery a new air shaft, 14x12 feet, was sunk from the surface to the Cooper seam. The reason for this shaft having been sunk was that the old air shaft had been retimbered so often inside that the area had become too small to retimber it again in the same way, and to take the old timber out and replace it with new would necessitate the colliery to be shut down for some months, which the officials did not want to do. Therefore, the new one was started, which was quite an undertaking on account of the depth of quicksand to be overcome in that neighborhood. However, they were quite successful with it. The shaft was sunk through the sand 128 feet and 12 feet through shelly slate and coal, 140 feet in all, when, on

the night of October 9, at 12.15 o'clock, the old airshaft collapsed, the timbering having given out. There was 35 feet of rock in the new shaft to be gone through to reach the Cooper seam when this occurred, and 90 feet of an airway to be driven through solid coal to complete the airway for the new shaft. In the morning when the superintendent, James B. Davis, arrived, he concluded to divide the hoisting shaft into two compartments and connect one-half with the fan, temporarily, in order to keep the mine clear of gas. They also put the column pipe of the pump in one-half, in order to keep the water out of the mine. On October 26 they started to hoist coal with one carriage, and continued to do so until the new air shaft was completed and the new fan erected.

The coal was hoisted on one carriage from the red ash to the Bennett seam, then taken off and replaced on the other carriage, to be hoisted up to the breaker. There were hoisted, in this manner, as many as 428 mine cars, although they were handling the cars five times instead of once, as they were doing when they could hoist to the top with both carriages.

On October 18 the foundation of the new fan was started, which contained 150 perches of stone. On this a new fan, 20 feet in diameter, was erected and steam turned on on November 6, 19 days from the time the foundation was started. The fan and building were completed in two days after. A new "Rand" duplex air compressor, 48x20 inches, had just been started to furnish air to run the pumps in the mines when the air shaft caved, which was very fortunate for them, as it helped to ventilate the workings.

The old fan has been put in repair and connected with the new air shaft, to be used as a duplicate in case of an emergency.

I am happy to say that to James B. Davis, superintendent, and the officials and workmen under him, I must give great credit for the amount of work done in such a short time, and the carefulness which was at all times exercised by them to guard against accidents, as not one person employed in or around the shaft was injured while the work was in progress, although this shaft is a very gaseous one and required a constant watch on the part of those having charge to avert an explosion.

Change of Operators.

The Pine Ridge Colliery, located at Miners Mills borough, has changed hands. It was operated by the Delaware and Hudson Canal Company until September 30, 1893, when it was surrendered on account of the expiration of their lease, when the Algonquin Coal Company became the operators, who immediately proceeded to do considerable repairing to the shaft before they started to mine and ship coal, which they began doing in the month of December, having worked $13\frac{1}{2}$ days.

TABLE 1—Showing Location, etc., of Collieries in the Third Anthracite District.

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Post-office Address.
Butler shaft, ...	Butler Mine Company, Limited,	Pittston township,	S. B. Bennett, ...	Pittston, Pa.
Schooley shaft, ...	do.	do.		
Fernwood shaft, ...	do.	do.		
Chapman shaft, ...	do.	do.		
Forty Fort shaft, ...	Wyoming Valley Coal Company,	Forty Fort,	W. A. Lathrope, ...	Wilkes-Barre, Pa.
Harry E. shaft, ...	do.	do.		
Twin shaft, ...	Hewton Coal Company, ...	Pittston,		
Ravine shaft, ...	do.	do.	John B. Law, ...	Pittston, Pa.
Columbia shaft, ...	Old Forge Coal Mining Company,	do.		
Phoenix shaft, ...	do.	do.		
Bennet shaft, ...	Thomas Waddell & Co., ...	Plains township,	Jas. Waddell, ...	Kingston, Pa.
Mill Hollow shaft, ...	do.	Luzerne borough,		
Black Diamond shaft, ...	John C. Haddock, ...	Pittston,	Jas. B. Davis, ...	Plymouth, Pa.
Clear Spring shaft, ...	Clear Spring Coal Company, ...	do.	J. L. Cake, ...	Pittston, Pa.
Consolidated shaft & slope,	Hillside Coal & Iron Co., ...	Pittston,	W. A. May, ...	Seranton, Pa.
Linwood shaft, ...	Florence Coal Company, ...	Avoca,	Austin Moore, ...	Seranton, Pa.
East Boston shaft, ...	W. G. Payne & Co., ...	Pittston township,	P. F. Payne, ...	Kingston, Pa.
Kearney shaft, ...	Abbott Coal Company, ...	Pittston township,	P. F. Mallory, ...	Kingston, Pa.
Kearney shaft, ...	do.	Plains township,	John M. Deet, ...	Wilkes-Barre, Pa.
Kay Dial slope, ...	John M. Robertson & Co., ...	Avoca,	John M. Robertson, ...	Wilkes-Barre, Pa.
Stevens slope, ...	Stevens Coal Company, ...	Pittston,	W. G. Thomas, ...	Pittston, Pa.
Annora shaft, ...	Annora Coal Company, ...	Latlin,	Wm. C. Allen, ...	Wilkes-Barre, Pa.
Langcliffe shaft, ...	Langcliffe Coal Company, ...	Avoca,	R. G. Brooks, ...	Seranton, Pa.
Avoca shaft, ...	Avoca Coal Company, ...	do.	Avoca, ...	Seranton, Pa.
Babylon shaft, ...	Babylon Coal Company, ...	Duryea,	J. L. Crawford, ...	Seranton, Pa.
Mount Lookout shaft, ...	Mount Lookout Coal Company, ...	Wyoming,	John A. Hutchins, ...	Wyoming, Pa.
Morning Star tunnel, ...	John A. Hutchins & Co., ...	do.	I. O. Blight, ...	Towanda, Pa.
Bernice drifts, ...	Slate Line & Sullivan R. R. Co., ...	Bernice,	George T. Neally, ...	Wilkes-Barre, Pa.
Pine Ridge shaft, ...	Algonquin Coal Company, ...	Miner Mills,		Wilkes-Barre, Pa.
Louise drifts, ...	Raub Coal Company, Limited, ...	Luzerne borough,	C. R. Marey, ...	Luzerne Boro., Pa.
Barnum No. 1, ...	Pennsylvania Coal Company, ...	Marey township, Luz. Co.,		
Barnum No. 2, ...	do.	do.		
Barnum No. 3, ...	do.	do.		
Law's shaft, ...	do.	Pittston twp., Luz. Co.,		
Shaft No. 13, ...	do.	Old Forge twp., Lacta. Co.,		
Shaft No. 1, ...	do.	Hughes town, Luz. Co.,		
Shafts No. 10 and 10 Jr., ...	do.	do.		
Shafts No. 1 and 8, ...	do.	do.		
Shaft No. 4, ...	do.	Jenkins township,		
Shaft No. 7, ...	do.	do.		
Shaft No. 5, ...	do.	do.		
Shaft No. 6, ...	do.	do.		
Shaft No. 11, ...	do.	do.		
Shaft and tunnel, No. 14, ...	do.	do.		
Hoyte shaft, ...	do.	do.		
			John B. Smith, general superintendent, ...	Dunmore, Lack'a., Co., Pa.
			Andrew Bryden, assistant superintendent, ...	Pittston, Pa.
			Alex. Bryden, assistant superintendent, ...	
			Anthony Horan, assistant superintendent, ...	

Prospect shaft,	Lehigh Valley Coal Company,	Plains, township,	
Oakwood shaft,	do.	do.	W. A. Lathrop, general superintendent, . . .
Henry shaft,	do.	do.	Wm. H. Lines, assistant superintendent, . . .
Weyer shaft,	do.	do.	A. G. Mason, assistant superintendent, . . .
Exeter shaft,	do.	Exeter, township,	
Heidelberg shaft,	do.	Pittston, do.	
Heidelberg slope,	do.	Plains township,	
Midvale slope,	do.	Malby, do.	
Maltby shaft,	do.	Plains, do.	
Mill Creek slope,	Delaware and Hudson Canal Co.,	Parsons, ...	A. H. Vandling, general superintendent, . .
Delaware shaft,	do.	Miners Mills, ...	
Laurel Run slope,	do.	Kingston township,	
Pine Ridge,	do.	do.	W. R. Storrs, general manager, ...
Pettibone shaft,	Del. Lacka., & Western R. R. Co.,	Duryea, ...	
Hunt shaft,	do.		
Hallstead shaft,	do.		

Wilkes-Barre, Pa.

Pittston, Pa.

Scranton, Pa.

Scranton, Pa.

TABLE NO. 2.—Gives the total number of tons of coal mined in each colliery, number of days worked, number of employees, number of persons killed and injured, number of kegs of powder used, &c., in the Third Anthracite District for the year ending December 31, 1893.

Names of Collieries.	Location.	Total production in tons of coal.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.	Number mine locomotives.
Pennsylvania Coal Company.											
Barnum, 3 shafts, ...	Marcy township, ...	127,986	127,986	120	502	2	1	4,661	24	54	1
No. 13 shaft, { Barnum breaker,	Old Forge, Lacka. County, ...	197,518	190,562	201	464	..	..	4,956	27	43	1
Lois shaft, {	Pittston, Lacka. County, ...	203,582	196,277	201.25	576	..	4	7,124	24	50	..
Nos. 9 and 10 shafts, ...	Hughestown, ...	128,452	125,337	200.75	339	..	1	3,385	14	38	..
Nos. 1 and 8 shafts, ...	do.	..	..	..	..	..	..	..	..	..	..
No. 4 slope, {	..	..	..	..	..	..	1	..	..	..	..
No. 7 shaft, {	Jenkins township, ...	272,814	260,219	208	711	2	3	8,439	45	50	..
No. 4 shaft, {	..	..	..	..	..	..	..	..	..	..	..
Hoyle shaft, {	..	..	..	..	..	..	..	..	..	..	..
No. 5 shaft, {	..	..	..	..	..	1	..	..	..	..	..
No. 6 shaft, {	do.	164,223	159,048	206.25	428	..	2	5,212	26	68	..
No. 11 shaft, {	..	221,391	212,907	201.75	533	..	7	6,553	26	67	1
No. 14 shaft and tunnels, ...	..	..	..	..	..	..	..	..	..	..	..
Total Pennsylvania Coal Company, ...	..	1,315,966	1,272,386	203	3,553	6	26	40,350	186	388	3
Lehigh Valley Coal Company.											
Prospect shaft, ...	Plains township, ...	182,104.05	182,068.05	177.75	575	3	5	3,818	40	79	3
Oakwood shaft, ...	do.	77,515	77,515	..	..	1	4	..	..	..	..
Midvale slope, ...	do.	115,937	111,973	179.60	189	..	..	3,264	21	37	..
Wyoming shaft and slope, ...	..	60,321	59,136.09	124.65	357	..	3	3,782	33	..	..
Henry shaft, ...	Matby township, ...	104,817.06	100,822.06	176.60	405	..	4	2,347	21	31	..
Matby shaft, ...	Exeter, ...	82,101.01	70,780.01	172.25	253	1	5	2,606	12	23	1
Exeter shaft, ...	Pittston township, ...	40,461.09	35,561.09	111.10	228	..	2	2,693	6	18	..
Heidelberg shaft, ...	do.	..	..	..	..	..	..	1,004	..	..	..
Heidelberg slope, ...	..	..	..	..	..	..	..	..	..	..	..
Total Lehigh Valley Coal Company, ...	..	653,260.01	637,891.10	156.99	2,296	6	34	19,120	137	285	4

<i>Delaware and Hudson Canal Company.</i>	Plains township, ...	4,551.11	4,551.11	15.75			1	57	23	3
Mill Creek slope, ...	do.	182,669.17	179,696.17	224.74	351		6	5,203	15	39
Delaware shaft, ...	Miners Mills, ...	164,009.18	161,154.16	211.50			2	4,796	21	. . .
Pine Ridge shaft, ...	Parsons, ...	136,275.05	136,275.05	221.50	409		2	4,903	12	69
Laurel Run slope, ...										
Total Delaware and Hudson Canal Company, ...		478,106.11	471,678.09	219.20	790		11	14,956	71	111
<i>Butler Mine Company, Limited.</i>	Pittston township, ...	42,787	39,885	181.40	185			2,079	9	18
Fernwood shaft, ...	do.	42,152	36,829	176.90	280		1			
Chapman shaft, ...	Butler shaft, ...	100.410	92,796	164.90	556		4	5,641	16	25
Schooley shaft, ...	Exeter, ...							4,507	21	1
Total Butler Mine Company, Limited, ...		185,349	169,400	174.40	821		6	10,227	46	70
<i>Newton Coal Company.</i>	Pittston, ...	294,630.04	263,721	189.10	795		7	11,922	36	73
Twin shaft, ...							2			
Ravine shaft, ...							9	11,922	36	73
Total Newton Coal Company, ...		294,630.04	263,721	189.10	795		9	11,922	36	73
<i>Old Forge Coal Mining Company.</i>	Duryea, ...	97,415	91,505.12	162.80	293		1	8,030	8	36
Columbia shaft, ...	do.	103,117.12	98,117.12	161.20	345		1	4,048	8	21
Phoenix shaft, ...										
Total Old Forge Coal Mining Company, ...		200,532.12	189,623.04	162	638		7	7,089	16	57
<i>Delaware, Lackawanna and Western R. R. Company.</i>	Duryea, ...	189,436.10	170,961.10	183.30	505		11	6,712	23	68
Hallstead shaft, ...	Kingston township, ...	79,787.05	68,200.05	105			7	2,291	27	6
Pettibone shaft, ...										
Total Dela., Lacka. and Western R. R. Co., ...		269,223.15	239,161.15	183.30	505		18	9,003	50	74
<i>Miscellaneous Coal Companies.</i>	Forty Fort, ...	108,781	92,608	220.80	401		2	8,078	16	28
Forty Fort shaft, ...	Kingston township, *				6					
Harry E. shaft, ...	Plains township, ...	59,919.18	57,297.18	209.75	124		1	1,827	6	13
Bennett shaft, ...	Luzerne boro, ...	82,063.04	72,949.18	193.20	346		2	2,500	17	26
Mill Hollow shaft, ...	do.	234,501.14	212,276.07	234.85	492		12	8,150	25	88
Black Diamond shaft, ...	Pittston, ...	189,729.19	174,212.11	231.70	445		3	6,456	21	79
Clear Springs shaft, ...	Avoca, ...	121,562.07	116,321.09	196	353		1	4,412	12	35
Consolidated shaft and slope, ...	Pittston township, ...	104,732	92,262	204.80	274		2	5,363	12	38
Elmwood shaft, ...	Kingston township, ...	202,966.13	194,662.19	223	481		7	8,399	25	39
East Boston shaft, ...	Plains township, ...	10,000	8,000	217	34		1	5,000	6	5
Farmount shaft, ...	Avoca, ...	79,717.07	73,276	228.60	276		11	3,400	8	31
Keystone slope, ...	Plains township, ...	78,412.03	61,607.01	191.60	359		5	3,820	16	29
Avoca slope, ...	Pittston, ...	81,867.01	77,862	171.05	212		8	2,775	8	31
Stevens shaft and slope, ...	Lafayette, ...	105,085	100,620	194.20	400		2	4,375	6	43
Ansonia shaft and slope, ...	Avoca, ...	53,044	51,034	203.75	149		2	7,083	12	16
Kanawha shaft, ...	Duryea, ...	234,837.09	220,267.09	169.20	424		2	1,764	8	50
Katydid shaft, ...	Wyoming, ...	277,121.18	257,223.01	195.25	522		9	9,431	20	98
Mount Lookout shaft, ...										

† Average.

* Idle all the year.

TABLE NO. 2—Continued.

Names of Collieries.	Location.	Total production in tons of coal.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.	Number mine locomotives.
Morning Star tunnel.	Wyoming.	19,000	18,000	204	69	...	...	900	2	6	...
Louise drifts.	Lauzeme boro.	6,953.03	6,512.08	355.70	105	...	...	245	2	7	...
Bernice drifts.	Bernice, Sullivan county.	70,418.01	63,522.04	184.25	307	...	...	...	4	48	1
Pine Ridge shaft.	Miner's Mills.	5,247	5,160	13.50	352	...	...	...	...	29	...
Total Miscellaneous Coal Companies.		2,222,846.16	2,057,206.01	202.68	6,411	41	67	80,897	243	742	7

Recapitulation.

Pennsylvania Coal Company.	1,315,968	1,272,386	203	8,553	6	26	40,350	186	388	3
Lehigh Valley Coal Company.	653,260.01	637,891.10	136.99	2,296	6	34	19,120	137	285	4
Delaware and Hudson Canal Company.	478,106.11	471,678.09	219.20	760	...	11	14,956	71	111	...
Butler Mine Company, Limited.	283,349	169,460	174.40	821	3	6	10,227	46	70	2
Norfolk Coal Company.	274,630.04	266,721	189.10	735	1	1	31,222	36	73	4
Old Forge Coal Company.	264,634.12	284,623.4	183.30	658	1	1	7,078	16	57	...
Delaware, Lackawanna and Western Railroad Company.	299,223.15	267,001.15	133.39	345	6	14	3,067	53	57	...
Miscellaneous coal companies.	2,222,846.16	2,057,206.01	202.68	6,411	41	67	80,897	243	742	7
Total for all coal companies.	5,623,914.19	5,301,127.19	*186.33	15,779	64	178	193,553	785	1,800	20

* Average.

TABLE NO. 3.—Showing the number of each class of employes at each colliery in the Third Anthracite Mine District, during the year 1893.

Names of Collieries	Location.	Number of Persons Employed Inside.						Number of Persons Employed Outside.									
		Inside foreman or mine boss.	Miners	Miners' laborers.	All company men.	Drivers and runners.	Door boys and helpers.	Total inside.	Outside foreman.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	All company men.	Superintendent, book-keepers and clerks.	Total outside.	Grand totals—inside and on outside.	
<i>Pennsylvania Coal Company.</i>																	
Barnum 2 shafts, ...	Marcy township, ...	2	140	140	30	59	25	397	1	4	12	60	27	4	108	505	
No. 13 shaft, ...	Old Forge, ...	1	60	61	13	18	6	150	1	5	11	63	43	3	126	349	
Laws shaft, ...	Pittston, ...	2	69	70	12	16	10	179	1	1	1	1	1	1	1	305	
No. 9 shaft, ...	Hughestown borough, ...	2	141	141	43	61	26	414	1	4	13	100	43	1	162	576	
No. 10 shaft, ...	do.	1	93	93	16	33	8	244	1	4	7	51	29	3	95	339	
Nos. 1 and 8 shafts, ...	do.	1	93	93	16	33	8	244	1	4	7	51	29	3	95	339	
Slope No. 4, ...	do.	1	93	93	16	33	8	244	1	4	7	51	29	3	95	339	
Shaft No. 7, ...	Jenkins township, ...	4	175	174	41	49	18	461	2	7	19	134	87	1	250	711	
Shaft No. 4, ...	do.	3	101	116	29	51	9	309	1	5	12	76	23	2	119	428	
Hoyte shaft, ...	do.	2	124	140	24	43	8	341	1	4	17	87	81	2	192	533	
Shaft No. 5, ...	do.	2	124	140	24	43	8	341	1	4	17	87	81	2	192	533	
No. 6 breaker, ...	do.	2	124	140	24	43	8	341	1	4	17	87	81	2	192	533	
Shaft No. 6, ...	do.	2	124	140	24	43	8	341	1	4	17	87	81	2	192	533	
Shaft No. 11, ...	do.	2	124	140	24	43	8	341	1	4	17	87	81	2	192	533	
Shaft and tunnels No. 14, ...	do.	2	124	140	24	43	8	341	1	4	17	87	81	2	192	533	
Total Pennsylvania Coal Co., ...	do.	17	903	935	208	330	111	2,504	8	33	91	571	333	16	1,052	3,556	
<i>Lehigh Valley Coal Company.</i>																	
Prospect shaft, ...	Plains township, ...	3	112	115	51	78	10	369	1	12	27	96	66	4	206	575	
Oakwood shaft, ...	do.	1	52	50	20	29	4	156	1	5	8	62	19	1	33	189	
Midvale slope, ...	do.	1	58	55	42	48	15	219	1	6	8	8	58	3	138	357	
Wyoming shaft and slope, ...	do.	1	110	55	50	30	5	251	1	5	5	5	37	104	2	154	405
Henry shaft, ...	do.	1	57	40	25	27	7	157	1	5	7	50	60	3	126	283	
Maltby shaft, ...	do.	1	39	39	25	17	2	123	1	4	6	6	64	60	1	136	259
Exeter shaft, ...	do.	1	41	17	18	13	3	93	1	7	4	58	63	2	135	228	
Heidelberg shaft, ...	do.	1	41	17	18	13	3	93	1	7	4	58	63	2	135	228	
Heidelberg slope, ...	do.	1	41	17	18	13	3	93	1	7	4	58	63	2	135	228	
Total Lehigh Valley Coal Co., ...	do.	9	409	371	231	242	46	1,368	6	44	65	367	430	16	928	2,296	

TABLE No. 3—Continued.

Names of Collieries.	Location.	Number of Persons Employed Inside.						Number of Persons Employed Outside.						Grand totals—inside and outside.		
		Inside foreman or mine boss.	Miners.	Miners' laborers.	All company men.	Drivers and runners.	Door boys and helpers.	Total Inside.	Outside foreman.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	All company men.		Superintendent, bookkeepers and clerks.	Total outside.
<i>Delaware and Hudson Canal Company.</i>																
Mill Creek slope,*	Plains township,	1	56	74	31	27	17	206	1	4	10	88	41	1	145	351
Delaware shaft,	do.	1	70	70	25	47	22	235	1	5	7	109	51	1	174	409
Pine Ridge shaft,†	Miners Mills,	1	70	70	25	47	22	235	1	5	7	109	51	1	174	409
Laurel Run slope,	Parsons,	1	70	70	25	47	22	235	1	5	7	109	51	1	174	409
Total Del. and Hudson Canal Co.		2	126	144	56	74	39	441	2	9	17	197	92	2	319	760
<i>Butler Mine Company, Limited.</i>																
Fernwood shaft,	Pittston township,	1	52	30	6	20	8	117	1	2	3	38	23	1	68	185
Chapman shaft,	do.	2	64	60	11	21	3	161	1	5	13	65	34	1	119	280
Butler shaft,	Exeter,	1	88	60	29	26	10	214	1	5	8	77	50	1	142	336
Schooley shaft,		1	88	60	29	26	10	214	1	5	8	77	50	1	142	336
Total Butler Mine Co., Limited,		4	204	150	46	67	21	492	3	12	24	180	107	3	329	821
<i>Newton Coal Company.</i>																
Twin shaft,	Pittston,	2	172	172	45	47	15	453	3	11	16	122	90	5	247	700
Ravine shaft,	do.	2	35	35	5	14	4	95							95	
Total Newton Coal Company,		4	207	207	50	61	19	548	3	11	16	122	90	5	247	795
<i>Old Forge Coal Mining Company.</i>																
Columbia shaft,	Duryea,	1	50	50	18	25	4	148	1	4	5	100	30	5	145	293
Phoenix shaft,	do.	1	68	68	26	30	5	198	1	4	6	100	30	6	147	345
Total Old Forge Coal Mining Co.,		2	118	118	44	55	9	346	2	8	11	200	60	11	292	638

<i>Delaware, Lackawanna and Western Railroad Company.</i>															
Duryea,	2	124	117	38	57	5	343	2	20	9	95	36	162	505	
Kingston township,															
Hallstead shaft,															
Pettione shaft,															
Total Del., Lacka. and Western Railroad Company,	2	124	117	38	57	5	343	2	20	9	95	36	162	505	
<i>Miscellaneous Coal Companies.</i>															
Forty Fort,	1	70	100	43	36	14	264	1	5	21	57	50	3	137	401
Harry E shaft,														6	
Kingston township,														2	
Bennet shaft,	2	24		10	16	2	78	1	2	4	23	13	2	46	124
Mill Hollow shaft,	1	192	87	23	14	37	936	1	4	5	23	36	4	110	346
Black Diamond shaft,	1	101	101	63	10	45	216	1	5	11	110	44	4	176	432
Clear Spring shaft,	2	188	127	48	35	48	351	1	7	4	44	34	3	144	445
Consolidated shaft and slope,	2	54	54	15	31	2	157	1	3	10	75	23	3	147	353
Winwood shaft,	2	110	108	39	48	16	321	2	4	10	104	34	3	157	434
East Boston shaft,	1	58												34	
Easton shaft,	1	58	58	16	26	8	167	1	2	9	4	34	2	112	271
Kepler shaft,	1	73	36	28	36	11	4	1	3	4	46	20	3	91	276
Avoea shaft,	1	63	95	35	33	4	213	1	4	11	101	46	3	146	359
Stervens shaft and slope,	1	70	35	15	15	2	138	1	4	9	27	37	2	74	212
Amora slope	2	110	110	30	38	9	209	1	6	5	60	36	3	110	409
Langcliffe shaft,	2	54	30	4	11	2	102	1	3	5	19	16	3	47	149
Katridge shaft,	1	125	131	21	33	6	317	1	5	9	20	70	2	107	424
Babylon shaft,	1	150	100	33	75	20	379	1	8	17	52	61	4	143	522
Mount Lookout shaft,	1	23	15	5	4	1	49	1	2	1	8	7	1	20	69
Morning Star tunnel,	1	12	12	28	4		64	1	3	2	25	10	4	41	105
Louise drifts,	1	160		21	10	6	191	1	3	8	65	38	1	116	307
Bernice, Sullivan co.,	1	62	62	39	35	4	203	1	6	10	90	40	2	149	352
Pine Ridge shaft,															
Total Miscellaneous Coal Co.,	26	1,635	1,310	483	624	177	4,255	22	93	170	1,133	687	51	2,156	6,411

* This colliery worked fifteen and three-quarter days in January, 1893, and stopped for the remainder of the year.

+ This company operated this colliery up to September 30, 1893, their lease expiring at that time.

† Idle all the year.

Recapitulation.

Pennsylvania Coal Company, ...	17	903	935	208	320	111	2,504	8	33	91	571	333	16	1,052	3,556
Lehigh Valley Coal Company, ...	9	469	371	224	212	46	1,945	6	44	65	307	430	16	939	2,260
Delaware and Hudson Canal Company, ...	2	126	371	224	39	40	1,945	2	17	17	307	492	12	318	740
Butler Mine Company, Limited, ...	4	204	456	67	67	21	492	3	12	24	180	107	3	329	821
Reynolds Coal Company, ...	4	207	250	61	61	19	548	3	11	16	192	106	3	217	755
Owens Coal Company, ...	2	118	118	44	55	9	343	2	8	11	200	60	1	262	638
Delaware, Lackawanna and Western Railroad Company, ...	2	124	117	38	57	5	343	2	20	9	45	36	1	162	505
Miscellaneous coal companies, ...	26	1,635	1,310	483	624	177	4,255	22	93	170	1,133	687	51	2,156	6,411
Total for all companies, ...	66	3,786	3,352	1,156	1,510	437	10,297	48	290	403	2,865	1,835	104	5,485	15,782

TABLE NO. 4.—*List of fatal accidents which occurred in and about the Mines of the Third Anthracite Mine District, for the year ending December 31, 1893.*

Date of accident.	Number of accident.	Name of Person.	Occupation.	Age.	Widow.	Number of orphans.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 6,	1	Peter Grobeck, ...	Slate picker, ...	40	S.	..	Clear Spring, ...	West Pittston, Luzerne county,	Smothered in the stove coal chute of breaker.
7,	2	Alexander Mahasky, ...	Laborer, ...	31	S.	..	Stervens slope, ...	do.	Fatally injured by fall of rock; died in Wilkes-Barre Hospital.
12,	3	Arthur Dombarski, ...	Laborer, ...	22	S.	..	Babylon shaft, ...	Duryea, Luzerne county, ...	Killed by fall of rock.
13,	4	John Peeler, ...	Door boy, ...	14	S.	..	Forty Fort shaft, ...	Forty Fort, Luzerne county, ...	Peeler and Bab were instantly killed at foot of inside slope while waiting to go up, by a trip of loaded cars running away on slope, and knocking out the timber where they stood, causing the roof to cave on them.
15,	5	John Bab, ...	Door boy, ...	15	S.	..	do.	do.	Fatally injured by being squeezed between cars on plane. Died same day.
Feb. 2,	6	Charles Schultz, ...	Track cleaner, ...	32	M.	3	Babylon shaft, ...	Duryea, Luzerne county, ...	Killed by the cage while working in the cave pit.
15,	7	James Mulcahey, ...	Footman, ...	35	M.	3	Twin shaft, ...	Pittston, Luzerne county, ...	Fatally injured by fall of rock. Died same day.
16,	8	Peter Voleiski, ...	Laborer, ...	23	S.	..	Mt. Lookout shaft, ...	Wyoming, Luzerne county, ...	Fatally injured by falling under trip of loaded cars. Died same evening.
17,	9	John Walsh, ...	Door boy, ...	15	S.	..	Exeter shaft, ...	Exeter boro., Luzerne county, ...	Fatally injured by falling under trip of cars on head of slope while unloading. Died March 5th.
28,	10	Wm. Newhart, ...	Headman, ...	18	S.	..	Clear Spring shaft, ...	West Pittston, Luzerne county, ...	Killed by an explosion of gas.
Mar. 9,	11	Wm. Reese, ...	Laborer, ...	23	S.	..	Pettebone shaft, ...	Kingsion tp., Luzerne county, ...	Killed by fall of rock at face of heading.
10,	12	Daniel Golden, ...	Miner, ...	27	M.	4	Mt. Lookout shaft, ...	Wyoming, Luzerne county, ...	Fatally injured by being squeezed between cars on slope. Died same evening.
13,	13	Thomas Brady, ...	Shop runner, ...	26	M.	1	Mill Hollow shaft, ...	Luzerne boro., Luzerne county, ...	Killed by fall of rock in face of chamber.
23,	14	John Strong, ...	Miner, ...	23	M.	1	Prospect shaft, ...	Plains, Luzerne county, ...	Killed by fall of rock in abandoned workings.
27,	15	Svan Paulson, ...	Timberman, ...	27	S.	..	do.	do.	Fatally injured by a trip of cars while going up a run. Died April 9th.
April 7,	16	Wm. Eustice, ...	Miner, ...	58	M.	8	Midvale slope, ...	do.	Fatally injured by an explosion of gas. Died April 24.
10,	17	Wm. Wellington, ...	Miner, ...	35	M.	2	B'k Diamond shaft, ...	Luzerne boro., Luzerne county, ...	Fatally burned by an explosion of gas as
10,	18	Wm. Otter, ...	Laborer, ...	24	S.	..	do.	do.	instantly killed by a door. (See report.)
10,	19	Wm. George, ...	Miner, ...	45	M.	1	do.	do.	caused by the above explosion of gas.

11,	20	John Quinn,	Driver,	15	S.	Consolidated slope,	Avoca, Luzerne county, . . .	Killed by car striking head block; crushing him against the pillar.
25,	21	John Summerville,	Miner,	65	M.	No. 7 shaft,	Pittston, Luzerne county, . . .	Died by fall of top coal.
May 6,	22	Wm. Pretell,	Laborer,	19	S.	Fernwood shaft,	Pittston tp., Luzerne county, . . .	Killed from heart trouble while loading a car with coal.
13,	23	Fabio Patrelina,	Miner,	23	S.	do.	do.	Killed by fall of rock.
16,	24	Uried Reese,	do.	30	M.	Pettebone shaft,	Kingston tp., Luzerne county, . . .	Fatally burned by gas. Died May 18,
24,	25	Geo. Delong,	do.	46	M.	Clear Spring shaft,	Pittston, Luzerne county, . . .	Killed by fall of top coal.
25,	26	Robt. Jones,	Driver,	19	S.	Pettebone shaft,	Kingston tp., Luzerne county, . . .	Killed by a mule falling on him.
25,	27	Wm. J. Bottoms,	do.	15	S.	Bl'k Diamond shaft,	Luzerne boro., Luzerne county, . . .	Killed by being caught between car and pillar.
25,	28	David S. Jones,	Driver boss,	45	M.	Mill Hollow shaft,	do.	Fatally injured by fall of coal and rock on slope. Died May 28th.
June 16,	29	John Gannon,	Miner,	60	M.	No. 5 shaft,	Inkerman, Luzerne county, . . .	Fatally injured by fall of rock. Died June 10th.
24,	30	Henry Hushelpeck,	do.	55	M.	Barnum shaft,	Marcy tp., Luzerne county, . . .	Killed by fall of rock.
26,	31	John Volco,	Cuimman,	30	M.	Mill Hollow breaker,	Luzerne boro., Luzerne county, . . .	Fatally injured by being struck on head by a car used for dumping rock cars. Died same day.
July 1,	32	Charles Stadrick,	Laborer,	21	S.	East Boston shaft,	Kingston tp., Luzerne county, . . .	Fatally injured by fall of bony coal. Died July 3d.
12,	33	Geo. Kester,	Runner,	26	M.	Pettebone shaft,	do.	{ Kester and Hughes were killed by an explosion of gas and three others, more or less injured. (See report.)
12,	34	Robert Hughes,	Driver,	17	S.	do.	do.	Fatally injured by being caught in screen. Died same day.
13,	35	James Lalley,	Slate picker,	15	S.	Mt. Lookout breaker,	Wyoming, Luzerne county, . . .	{ Hoffa and Snyder were instantly killed on passing branch at foot of slope by fall of rock. (See report.)
20,	36	John J. Hoffa,	Runner,	19	S.	Stevens slope,	Pittston, Luzerne county, . . .	Killed by fall of rock dislodged by a blast.
20,	37	John Snyder,	Driver,	19	S.	do.	do.	{ Wallace, Mould and Semeda were fatally and Robert Saybolt painfully burned by an explosion of gas while driving a cross cut from the airway to heading. (See report.)
Aug. 1,	38	Thomas Dudasko,	Laborer,	28	M.	Heldeburg No. 1,	Avoca, Luzerne county, . . .	Fatally injured by car falling on him at same time.
5,	39	John M. Wallace,	Ass't foreman,	47	M.	East Boston shaft,	Kingston twp., Luzerne county, . . .	Killed by falling down shaft.
5,	40	Robert Mould,	Fire boss,	39	M.	do.	do.	Killed by fall of rock.
5,	41	Mathew Semeda,	Miner,	32	M.	do.	do.	Killed by being thrown from a mule while taking it to be shod.
8,	42	Victor Schumalecki,	Laborer,	24	S.	Columbia breaker,	Duryea, Luzerne county, . . .	Killed by fall of rock while working in an entrance.
16,	43	Patrick Gallagher,	do.	22	S.	Hyote shaft,	Pittston, Luzerne county, . . .	Killed by fall of rock.
21,	44	A. New Maleskie,	do.	26	S.	Mt. Lookout shaft,	Wyoming, Luzerne county, . . .	Fatally injured by being squeezed between car and pillar; died same day.
23,	45	William Jones,	Driver,	16	S.	Barnum No. 3 shaft,	Duryea, Luzerne county, . . .	Fatally burned by an explosion of gas; died October 20, 1893.
Sept. 8,	46	Stephen Kellanner,	Miner,	29	S.	Black Diamond shaft,	Luzerne boro., Luzerne county, . . .	Killed by falling from cage while coming up the shaft.
19,	47	Eno Grablin,	Laborer,	38	M.	do.	do.	Fatally burned by an explosion of oil while filling his lamp; died next day.
21,	48	George Garland,	Door boy,	16	S.	do.	do.	Killed by fall of rock at face of heading.
Oct. 13,	49	Charles Nuss,	Miner,	36	M.	Mt. Lookout shaft,	Wyoming, Luzerne county, . . .	Killed by fall of rock while going up a chamber with a car, which he went back, thinking it had missed.
21,	50	Peter Miller,	do.	25	S.	do.	do.	
24,	51	Edward Myers,	Track layer,	28	S.	Prospect shaft,	Plains, Luzerne county, . . .	
26,	52	John Garvin,	Miner,	59	M.	Hyote shaft,	Pittston, Luzerne county, . . .	
30,	53	James Clark,	Helper,	15	S.	Stevens slope,	do.	
31,	54	James Padden,	Laborer,	47	M.	Fairmount shaft,	do.	

TABLE NO. 4—Continued.

Date of accident.	Number of accident.	Name of Person.	Occupation.	Age.	Widow.	Number of orphans.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Nov. 6, 14, 15,	55 56 57	Tomoxher Stragnumis, Stephen Mott, John Kosek,	Laborer, do. do.	28 25 33	S. M. M.	1 1	Stevens slope, Italsicad shaft, Bennett shaft,	Pitston, Luzerne county, Dryden, Luzerne county, Flams, Luzerne county,	Killed by fall of rock at face of chamber. Killed by fall of rock. Killed by fall of rider coal while drawing pillars.
27,	58	Ignus Urbanwich,	do.	30	S.	..	Mt. Lookout shaft,	Wyoming, Luzerne county,	Fatally injured by fall of rider coal: died in the way to the hospital.
Dec. 11,	59	Patriak English,	Driver,	16	S.	..	Black Diamond shaft,	Luzerne boro., Luzerne county,	Killed while unloading his mule by being caught between bumpers of cars.
20, 20, 20,	60 61 62	Richard Clark, Peter Seck, Dominick Glrares,	Timberman, do. Laborer,	42 34 25	M. M. S.	2 2 ..	Langelite shaft, do. Fernwood shaft,	Avoca, Luzerne county, do. Pitston twp., Luzerne county,	Clark and Seck were killed while standing on a double timber in the heading by a fall of rock. Fatally injured by fall of rock: died in the hospital December 28.
23, 23,	63 64	Thomas McNalley, Thomas Rewan,	Sinker, do.	40 35	M. M.	1 5	Elmwood No. 2, do.	do. do.	McNalley was instantly killed and Rewan fatally injured, dying some evening by a blast in a sinking shaft. At the change of the shift at eleven o'clock p. m. three of the retiring shift came up on the bucket while McNalley and Rewan stayed to connect the wires before coming up. The contractor, Charles Rosenkrantz, connected the wires to the battery in a shanty some distance from the top of shaft and exploded the blast without being notified to do so, with the above result.

Thirty widows and 100 orphans.

TABLE NO. 5.—List of non-fatal accidents which occurred in and about the Mines of the Third Anthracite Mine District, for the year ending December 31, 1893.

Date of accident.	No. of accident.	Name of Person.	Occupation.	Age.	Married.	No. of Children.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 5	1	John Mifski.	Laborer.	24	S.	..	Langcliffe shaft.	Avoca, Luzerne county.	Hip dislocated and face cut by fall of bony coal.
6	2	Thos. Moor.	Miner.	24	M.	2	Maltby shaft.	Maltby, Luzerne county.	Both legs broken by fall of rock while timbering by a mule falling on him.
9	3	Fred. Arnott.	Driver.	17	S.	..	Hallstead outside.	Duryea, Luzerne county.	Leg destroyed by a premature blast.
12	4	Conrad Palinski.	Laborer.	25	S.	..	Delaware shaft.	Plains, Luzerne county.	Eye painfully injured by piece of coal flying from his pick.
11	5	Morgan Bevan.	Miner.	35	M.	5	Wyoming shaft.	do.	Back injured by falling under car.
18	6	John Hunsler.	Laborer.	23	S.	7	Heidelberg, No. 2.	Pittston, Luzerne county.	Foot painfully bruised by fall of rider coal.
19	7	Geo. Adams.	Miner.	51	M.	..	Delaware shaft.	Plains, Luzerne county.	Severely bruised by fall of rock.
20	8	Matash Navitski.	Miner.	30	S.	4	Chapman shaft.	Pittston, Luzerne county.	Foot bruised by fall of rock.
21	9	Wm. Cabbage.	Miner.	33	S.	6	Hallstead shaft.	Plains, Luzerne county.	Seriously injured by coal flying from a blast.
21	10	Wm. Elliott.	Miner.	32	M.	6	Delaware shaft.	Plains, Luzerne county.	Seriously injured by fall of rock.
21	11	David Davis.	Laborer.	21	S.	..	Heidelberg, No. 2.	Avoca, Luzerne county.	Arm broken by being caught between cars.
23	12	Harry Bowkly.	Footman.	39	S.	..	No. 7 shaft.	Pittston, Luzerne county.	Painfully bruised by fall of rider coal.
23	13	Joseph Gavin.	Miner.	36	S.	..	Hallstead shaft.	Duryea, Luzerne county.	Back injured by fall of rock.
26	14	Wm. Perry.	Miner.	22	M.	..	Hallstead shaft.	Plains, Luzerne county.	Arm broken and face cut by falling from top of breaker steps.
31	15	Mike Koskusi.	Slate boy.	13	S.	..	Mill Creek breaker.	Plains, Luzerne county.	Foot crushed by rock sliding down pitch necessitating amputation.
Feb. 1	16	Henry Williams.	Miner.	47	M.	..	Mill Hollow shaft.	Luzerne Boro., Luzerne Co.	Shoulder dislocated by being caught between car and rock.
3	17	Thomas Moran.	Driver.	16	S.	..	Delaware shaft.	Plains, Luzerne county.	Piece and hand painfully burned by gas.
4	18	Patrick Monohan.	Miner.	32	M.	2	Hallstead shaft.	Duryea, Luzerne county.	Head severely bruised bet'n car and props.
4	19	Peter Turner.	Driver.	16	S.	..	Delaware shaft.	Plains, Luzerne county.	Gnawed and his laborer, Seskey, went back after firing a blast when a piece of mid-dle rock fell injuring them severely.
6	20	Michael Green.	Miner.	21	S.	..	Bl'k Diamond shaft.	Luzerne Boro., Luzerne Co.	die rock fell injuring them severely.
6	21	Paul Seskey.	Laborer.	40	M.	..	do.	do.	Merofski and Nobeck were laboring together in same chamber when a fall of rock came on them injuring them severely.
6	22	Mike Merofski.	Laborer.	28	S.	..	Senecca shaft.	Pittston, Luzerne county.	Hand and leg severely injured by falling under the locomotive.
6	23	Barney Nobeck.	Laborer.	23	S.	..	do.	do.	Leg broken by a premature blast.
11	24	John Bomby.	Switch man.	18	S.	..	Mt. Lookout shaft.	Wyoming, Luzerne county.	Leg broken by fall of rock.
11	25	Joseph Carbovlah.	Miner.	30	M.	2	Bl'k Diamond shaft.	Luzerne Boro., Luzerne Co.	Leg broken by falling from a car.
14	26	Joseph Ramoskey.	Miner.	38	S.	..	do.	do.	
20	27	Dominick McAndrew.	Runner.	18	S.	..	Consolidated breaker.	Avoca, Luzerne county.	

TABLE No. 5.—Continued.

Date of accident.	No. of accident.	Name of Person.	Occupation.	Age.	Widow.	No. of children.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Feb. 20,	28	John Everett,	Chim. loader,	17	S.	..	Laurel Run breaker,	Parsons, Luzerne county, . . .	Leg broken by falling under culm car.
21,	29	John Nelson,	Miner,	42	S.	..	Midvale slope, . . .	Plains, Luzerne county, . . .	Severely burned on face and hand by an explosion of gas.
23,	30	John Rehm,	Miner,	26	S.	..	do.	do.	Leg broken by falling on rail.
28,	31	Martha Reynolds,	Laborer boy,	25	M.	..	No. 5 shaft, . . .	Inkerman, Luzerne county, . . .	Face painfully burned by gas.
Mar. 1,	32	Edward Gibbons,	Miner,	28	M.	..	No. 14 shaft, . . .	Plains, Luzerne county, . . .	Back and hips bruised by fall of rock.
2,	33	Peter Higgins,	Laborer,	55	M.	4	Forty Fort shaft, . . .	Forty Fort, Luzerne county, . . .	Back broken by props falling from rib on him.
5,	34	John Griffiths,	Laborer,	30	M.	..	Black Diamond shaft,	Kingston twp., Luzerne county, . . .	Leg injured by coal falling on him.
6,	35	John Malcom,	Timberman,	60	M.	..	Black Diamond shaft,	Luzerne bor., Luzerne county, . . .	Hand crushed by car wheel going over it.
7,	36	George Smith,	Footman,	22	M.	1	Maitly breaker, . . .	Maitly, Luzerne county, . . .	Painfully burned on face and hands by an explosion of gas.
8,	37	Jerom Wichter,	Miner,	43	S.	2	Forty Fort shaft,	Forty Fort, Luzerne county, . . .	Head and shoulders bruised by car on slope.
13,	38	John Vorisich,	Laborer,	24	S.	..	Forty Fort shaft,	Forty Fort, Luzerne county, . . .	Leg broken and ankle dislocated by fall of rock.
8,	39	John Mond,	Driver,	16	S.	..	Laurel Run slope, . . .	Parsons, Luzerne county, . . .	Bruised by an explosion of gas.
9,	40	Martin Johnson,	Laborer,	27	M.	..	do.	do.	Severely injured by fall of rock.
10,	41	Paul Ther,	Laborer,	32	M.	..	Pettebone shaft, . . .	Kingston twp., Luzerne county, . . .	Severely burned by falling taking fire from an explosion of gas.
13,	42	Thompson Golden,	Laborer,	23	S.	..	Mt. Lookout shaft,	Wyoming, Luzerne county, . . .	Leg broken by falling down breaker steps while playing.
14,	43	Thomas Dunn,	Laborer,	24	S.	..	Black Diamond shaft,	do.	Arm painfully cut by fall of coal.
14,	44	John Savage,	Slate picker,	14	S.	..	Babylon breaker, . . .	Kingston twp., Luzerne county, . . .	Painfully burned by gas about face and hand while entering abandoned chamber.
15,	45	William Eslick,	Miner,	36	M.	2	East Boston shaft, . . .	Plains, Luzerne county, . . .	Knée dislocated and small bone in foot broken by fall of coal.
16,	46	Philip McHugh,	Laborer,	30	M.	1	Pettebone shaft, . . .	Wyoming, Luzerne county, . . .	Knée-cap bruised by fall of rock.
17,	47	William Jones,	Laborer,	23	S.	..	Delaware shaft, . . .	Pittston, Luzerne county, . . .	Painfully burned by an explosion of gas while going into an entrance which was not through.
18,	48	James Farnelle,	Miner,	52	M.	7	do.	do.	Painfully bruised by fall of rock.
19,	49	Mike Galmaskie,	Miner,	29	S.	..	Mt. Lookout shaft, . . .	Miners Mills, Luzerne county, . . .	Ribs broken by fall of rock.
21,	50	Adam Harkness,	Foreman,	50	M.	2	No. 9 shaft, . . .	Pittston, Luzerne county, . . .	Hip and leg severely bruised by coal tying from a blast.
21,	51	William Daniels,	Fire boss,	36	M.	..	Pine Ridge shaft,	Duryea, Luzerne county, . . .	Thigh broken while riding on front end of
22,	52	Thomas Trezasker,	Miner,	24	S.	..	Mt. Lookout shaft,	Plains, Luzerne county, . . .	Two fingers broken while sprigging car.
23,	53	George Yerger,	Miner,	35	M.	3	Stevens slope, . . .	Duryea, Luzerne county, . . .	Thigh broken by fall of coal.
24,	54	Benjamin Griffith,	Miner,	38	M.	4	do.	Pittston, Luzerne county, . . .	Head and shoulders bruised by rock while barring the same down.
27,	55	Edward Quinn,	Runner,	17	S.	..	Hallstead shaft, . . .	do.	
30,	56	Alex. Papkinsky,	Miner,	32	M.	..	Keystone slope,	Plains, Luzerne county, . . .	
31,	57	George Fortjanky,	Laborer,	23	M.	..	Hallstead shaft, . . .	Duryea, Luzerne county, . . .	
April, 3,	58	John Burk,	Miner,	65	M.	5	No. 4 shaft, . . .	Pittston, Luzerne county, . . .	

6,	59	Alex. Taylor,	Miner,	...	M.	...	Wyomingshaft,	Plains, Luzerne county,	Head and back severely bruised by fall of top coal.
7,	60	Uriek Coolbeck,	Miner,	...	46 M.	5	{ Twin shaft, . . . }	Pitston, Luzerne county,	{ Coolbeck and Waggoner with their laborers had fired a blast which ignited a feeder of gas in their chamber. While trying to extinguish it, a small quantity of gas had accumulated next the roof which ignited from the feeder and burned them on face and hands.
7,	61	Stephen Wagner,	Miner,	...	28 M.	1			
7,	62	John Collifut,	Laborer,	...	25 S.	...			
7,	63	Adam Grosfide,	Laborer,	...	28 S.	...			
8,	64	Edward Corcoran,	Miner,	...	28 M.	...	{ Forty Fort shaft, . . . }	Forty Fort, Luzerne county,	{ Buried on face and hands by an explosion as laborer went up the chamber with new iron on his head.
8,	65	Anthony Dorlin,	Laborer,	...	21 M.	...			
12,	66	John Pardeck,	Miner,	...	23 M.	...			
17,	67	Mungo Thompson,	Miner,	...	44 M.	3	{ Hoyte shaft, . . . }	Pitston, Luzerne county,	{ Thompson and Bone were working in face of heading when a small quantity of gas collected which was ignited from their lamps, burning them on face and hands.
17,	68	Aaron Bone,	Miner,	...	34 M.	1			
21,	69	Arthur Memery,	Driver,	...	16 S.	...	Hoyte shaft,	Pitston, Luzerne county,	Knee-cap displaced, caught between car and mule.
27,	70	Morgan Samuels,	Miner,	...	46 M.	1	Prospect shaft,	Plains, Luzerne county,	Head cut by a piece of coal while standing timber.
28,	71	Mathias Kayetsky,	Miner,	...	28 S.	...	Clear Spring shaft,	Pitston, Luzerne county,	Face and neck cut by a fall of top coal.
30,	72	George Eckert,	Pumpman,	...	45 S.	...	Keystone shaft,	Plains, Luzerne county,	Shoulders and hip bruised, fell from a platform in sump.
3,	73	Michael Kuslonsky,	Miner,	...	35 M.	3	Black Diamond shaft	Luzerne borough, Luzerne co.,	Painfully injured by fall of checker coal.
9,	74	George Moses,	do.	...	35 M.	3	No. 1 shaft,	Hugestown, Luzerne county,	Ribs fractured and back bruised by fall of rock.
11,	75	John Cowley,	Driver,	...	18 S.	...	Twin shaft,	Portstown, Luzerne county,	Back bruised by falling in front of cars.
12,	76	William Evans,	Laborer,	...	15 S.	...	Forty Fort shaft,	Forty Fort, Luzerne county,	Painfully bruised by falling under trip of car.
18,	77	James McCormack,	Blacksmith,	...	30 S.	...	No. 14 shaft,	Jenkins township, Luzerne co.,	Hand and back cut by fall of rock.
22,	78	William McCreaty,	Driver,	...	27 S.	...	Henry shaft,	Plains, Luzerne county,	Struck on eye by piece of coal falling down shaft.
24,	80	Stephen Secula,	Footman,	...	32 M.	2	Wyoming shaft,	do.	Painfully injured by falling under loaded car.
25,	81	Anthony Klesky,	Miner,	...	36 M.	...	No. 14 breaker,	Jenkins township, Luzerne co.,	Seriously bruised on back and abdomen while passing under descending cage in tower.
27,	82	George Campbell,	Driver,	...	18 S.	...	Mt. Lookout shaft,	Wyoming, Luzerne county,	Hand broken and face cut by premature blast.
29,	83	Charles Vanderburg,	do.	...	15 S.	...	Keystone slope,	Plains, Luzerne county,	Arm broken and hand bruised by falling under empty car.
31,	84	John La France,	Miner,	...	32 M.	1	No. 10 shaft (outside)	Duryea, Luzerne county,	Leg broken by mule falling; caught him against a car.
2,	85	Mike Mehalik,	do.	...	35 S.	...	School shaft,	Exeter, Luzerne county,	Painfully cut and bruised by going back to blast thinking it had misfired.
2,	86	James Melliski,	do.	...	30 M.	1	Elmwood shaft,	Avoca, Luzerne county,	Arm broken by coal falling from a blast.
5,	87	Martin Drenvokle,	Laborer,	...	34 M.	2	Phoenix shaft,	Duryea, Luzerne county,	Painfully injured by explosion of cartridge while working in hole with drill.
5,	88	James Flynn,	Driver,	...	16 S.	...	Babylon shaft,	do.	Leg broken by falling on mule.
5,	89	Joseph Balasky,	Miner,	...	23 S.	...	Henry shaft,	Plains, Luzerne county,	Seriously injured by being kicked by a mule.
7,	90	Patrick Killday,	do.	...	44 S.	...	East Boston shaft,	Kingston twp., Luzerne co.,	Foot bruised by slate falling on it.
7,	91	George O. Boyle,	Engineer,	...	37 M.	2	Exeter,	Exeter, Luzerne county,	Head and shoulders bruised by premature blast.
							do.	do.	Foot severely cut by being caught between engine and cars.

TABLE 5—Continued.

Date of accident.	No. of accident.	Name of Person.	Occupation.	Age.	Married.	Number of children.	Name of Colliery.	Location—County.	Name and Cause of Accident.
June 10,	91	George Cadwalder, ...	Miner, ...	28	M.	3	East Boston shaft, .	Kingston twp., Luzerne co., .	Foot injured by fall of rock.
12,	93	Francis Keenan, ...	Driver, ...	14	S.	1	Katydid (outside), .	Avoca, Luzerne county, . . .	Skull fractured by being kicked by a mule.
13,	94	Stephen Miller, ...	do. . . .	19	S.	1	Pine Ridge shaft, .	Miners' Mills, Luzerne county,	Leg painfully cut by falling under loaded cars.
17,	95	John Sullivan, ...	Miner, ...	25	M.	2	Black Diamond shaft	Luzerne borough, Luzerne co., .	Slightly burned by gas.
17,	96	James Clark, ...	Footman, ...	25	S.	1	Twin shaft, ...	Pittston, Luzerne county, . . .	Plainly bruised by being caught between car and cage in shaft blast.
17,	97	Owen McDermott, ...	Miner, ...	50	S.	1	Wyoming shaft, . .	Plains, Luzerne county, ...	Injured by iron wire falling from top of rock.
20,	98	Frank Kascovitch, ...	Laborer, ...	30	S.	1	Heidelberg, No. 1, .	Avoca, Luzerne county, ...	Hips and arms burned by gas.
22,	99	Charles Vistoski, ...	do. . . .	34	M.	2	East Boston shaft, .	Kingston twp., Luzerne co., .	Hips and arms burned by gas.
23,	100	Henry Wilson, ...	Carpenter, ...	48	M.	1	Keystone breaker, .	Plains township, Luzerne co., .	Leg broken by a stick of timber falling on him.
26,	101	Stanley Morak, ...	Driver, ...	16	S.	1	East Boston shaft, .	Kingston twp., Luzerne co., .	Jaw cut by being kicked by a mule.
July 6,	102	Man Smith, ...	Barn boss, ...	55	M.	9	Keystone (outside), .	Plains township, Luzerne co., .	Seriously injured by being kicked by a mule.
12,	103	John Ford, ...	Miner, ...	34	M.	1	Pettibone shaft, . .	Kingston twp., Luzerne co., .	Painfully burned by an explosion of gas at the time Kester and Hughes lost their lives. (See report).
12,	104	Frank Rodak, ...	Laborer, ...	25	S.	1	do. . . .	do. . . .	Leg broken and otherwise injured by fall of rock.
12,	105	Peter Chrenesitch, ...	do. . . .	25	S.	1	Barnum shaft, . . .	Duryea, Luzerne county, ...	Hand and arm badly lacerated by car wheel going over it.
12,	106	William Lyons, ...	do. . . .	19	S.	1	Schooly shaft, . . .	Exeter, Luzerne county, ...	Face and hands burned by gas.
13,	107	James Finn, ...	Driver, ...	16	S.	1	do. . . .	do. . . .	Seriously injured while riding on car on breaker plane.
13,	108	Michael Myers, ...	Miner, ...	34	M.	1	No. 4 shaft, ...	Pittston, Luzerne county, ...	Ribs fractured by falling off wagon and wheel going over him.
13,	109	Mathias Ruschell, ...	do. . . .	28	M.	4	Maltby breaker, . .	Maltby, Luzerne county, ...	Eye severely cut and injured by a kick from a mule.
18,	110	John Krishko, ...	Laborer, ...	28	S.	1	Prospect (outside), .	Plains, Luzerne county, ...	Artificially on side of head by piece of coal.
19,	111	Christ Waltz, ...	Teamster, ...	32	M.	5	do. . . .	do. . . .	Painfully injured by falling of rock on passing branch.
20,	112	Alex. Johnson, ...	Driver, ...	18	S.	1	Prospect shaft, . .	do. . . .	Seriously injured by fall of rock.
20,	113	James Bailey, ...	Miner, ...	49	M.	1	do. . . .	Pittston, Luzerne county, ...	Burned by an explosion of gas.
20,	114	Joseph Souley, ...	Laborer, ...	22	M.	1	Stevens slope, . . .	do. . . .	Leg broken; caused by above explosion.
25,	115	Stephen Maskovitch, ...	do. . . .	45	S.	5	Hallstead shaft . .	Duryea, Luzerne county, ...	Seriously burned by an explosion of gas.
Aug. 3,	116	Edward Barry, ...	Laborer, ...	35	S.	2	No. 14 shaft, ...	Jenkins twp., Luzerne county, .	Arm broken by falling from a mule.
3,	117	John Conney, ...	do. . . .	15	S.	2	do. . . .	do. . . .	Hips bruised; caught on culm plane by car.
7,	118	Peter Donnelly, ...	Door boy, ...	15	S.	2	do. . . .	do. . . .	
7,	119	William Schall, ...	Miner, ...	34	M.	1	East Boston shaft, .	Kingston twp., Luzerne co., .	
7,	120	William Algor, ...	Oiler, ...	15	S.	1	Langelfile breaker, .	Avoca, Luzerne county, ...	
8,	121	John Roumy, ...	Laborer, ...	27	M.	1	Prospect breaker, .	Plains twp., Luzerne county, . .	

11,	122	Lawrence Kleleine.	Driver.	50	M.	1	B'k Diamond shaft,	Luzerne, Luzerne county, . . .	Painfully burned on face and hands by an explosion of gas.
11,	123	John Kern.	Door boy.	17	S.	..	do.	do.	Thigh broken by fall of rock.
15,	124	William Davis.	Miner.	28	S.	..	do.	do.	Head and face cut by fall of rock.
23,	125	John Ellringham.	Miner.	24	S.	..	Hallstead shaft.	Duryea, Luzerne county, . . .	Severely injured on back by fall of top coal.
25,	126	Charles Updyke.	Miner.	39	M.	6	Mill Hollow shaft.	Luzerne, Luzerne county, . . .	Hip painfully bruised by fall of coal.
30,	127	Hugh Kent.	Timberman.	38	M.	3	Forty-Port shaft.	Forty-Port, Luzerne county, . . .	Leg broken by falling under car while in motion.
Sept. 1,	128	Fred Wega.	Door boy.	16	S.	..	Hallstead shaft.	Duryea, Luzerne county, . . .	
4,	129	Alex Burke.	Miner.	23	S.	..	Exeter shaft.	Exeter, Luzerne county, . . .	Foot severely bruised by fall of rock.
6,	130	Patrick Brady.	Miner.	55	M.	..	B'k Diamond shaft.	Luzerne, Luzerne county, . . .	Skull and collar bone fractured by premature blast.
9,	131	Laurence Brennan.	Helper.	14	S.	..	Hallstead shaft.	Duryea, Luzerne county, . . .	Arm broken, falling from a car.
11,	132	Mike Boytune.	Laborer.	39	S.	..	Wyoming shaft.	Plains, Luzerne county, . . .	These three brothers were painfully burned on face and hands by an explosion of gas.
11,	133	Andrew Boytune.	Laborer.	32	S.	..	do.	do.	
13,	134	Thomas Hines.	Miner.	53	M.	..	Exeter shaft.	Exeter, Luzerne county, . . .	Arm severely cut by coal from a premature blast.
13,	135	John Walsh.	Miner.	38	M.	3	Katydid slope.	Aroca, Luzerne county, . . .	Seriously kicked on chest by a mule.
18,	136	Malachi Mangam.	Miner.	48	M.	8	No. 6 slope.	Inkerman, Luzerne county, . . .	Leg broken by fall of rock.
18,	137	Simon Pedales.	Laborer.	30	S.	..	Langcliffe shaft.	Aroca, Luzerne county, . . .	Head and back bruised by fall of rock.
18,	138	Thomas Winston.	Driver.	16	S.	..	No. 10 shaft.	Pittston, Luzerne county, . . .	Collar bone fractured by being squeezed between car and rib.
20,	139	Ludwick Costosky.	Laborer.	35	S.	..	East Boston shaft.	Kingsdon twp., Luzerne county, . . .	Foot and leg bruised by coal flying from a blast.
20,	140	William Ryan.	Driver.	16	S.	..	Midvale slope.	Plains twp., Luzerne county, . . .	Knee injured by being kicked by a mule.
26,	141	Mike Lonlwach.	Footman.	32	S.	..	No. 6 shaft.	Inkerman, Luzerne county, . . .	Head badly cut by being struck by an empty car.
26,	142	John Clishlan.	Miner.	53	M.	6	Heidelberg No. 2.	Aroca, Luzerne county, . . .	Back bruised by fall of top coal.
28,	143	Mike McHale.	Driver.	17	S.	..	do.	do.	Leg broken in two places by being caught between car and mule.
Oct. 2,	144	Martin Dean.	Laborer.	29	M.	3	Keystone slope.	Plains, Luzerne county, . . .	Head cut by coming in contact with a car.
3,	145	Robert Loughneey.	Culm man.	55	M.	2	No. 4 slope.	Pittston, Luzerne county, . . .	Collar bone fractured; car jumped the track on this slope.
7,	146	Mike Chiritsky.	Miner.	25	M.	..	Henry shaft.	Plains, Luzerne county, . . .	Back painfully bruised by being struck by coal flying from a blast.
9,	147	William Hale.	Charge man.	42	M.	..	Columbia shaft.	Duryea, Luzerne county, . . .	These five men were painfully burned on face and hands by gas while working on a platform in the shaft. They were opening a seam of coal which had just been passed through; in the course of sinking the gas accumulated under the platform they were working on, when Joice's light came in contact with a feeder in the coal and ignited the gas below the platform, burning them more or less severely.
9,	148	Thomas Tighe.	Sinker.	33	S.	..	do.	do.	Leg broken by fall of coal.
9,	149	Thomas Joice.	Sinker.	32	M.	4	do.	do.	These three men and Charles Nuss were burned by an explosion of gas. In the morning they were told by the fire boss that their working place was all right for them, and they took the place on the platform.
9,	150	Domick Morgan.	Sinker.	34	M.	..	do.	do.	On the explosion took place, the gas having collected after the fire boss had made his examination by some one having left a door open while they were going to work. Nuss died from his burns.
9,	151	Patrick McNulty.	Sinker.	37	S.	..	do.	do.	Foot crushed by falling under trip of cars, necessitating amputation.
11,	152	Jacob Kern.	Miner.	..	M.	..	Butler shaft.	Pittston, Luzerne county, . . .	
13,	153	G. V. Evans.	Miner.	27	S.	..	Mt. Lookout shaft.	Wyoming, Luzerne county, . . .	
13,	154	David Jones.	Miner.	40	M.	7	do.	do.	
13,	155	William Geiger.	Miner.	26	S.	..	do.	do.	
,	156	Alex. Kearney.	Driver.	15	S.	..	No. 14, outside.	Jenkins, Luzerne county, . . .	

TABLE No. 5.—*Concluded.*

Date of accident.	No. of accident.	Name of Person.	Occupation.	Age.	Married.	No. of children.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Oct. 16,	157	Robert Hislope, ...	Dock boss, . .	24	M.	3	Keystone slope, . .	Plains, Luzerne county, ...	Arm severely bruised by being struck by plane rope.
17,	158	Anthony Klemoskie, . . .	Miner, ...	35	S.	. .	Twin shaft, ...	Pittston, Luzerne county, ...	Leg broken by piece of rock falling from roof.
18,	159	Evan J. Ortel, ...	Oiler, ...	15	S.	. .	Keystone slope, . .	Plains, Luzerne county, ...	Leg broken by trip of cars striking him.
18,	160	Joseph Farrey, ...	Laborer, ...	28	M.	1	Hallstead shaft, . .	Duryea, Luzerne county, ...	Foot severely bruised by fall of rock.
19,	161	Mike Noviske, ...	Miner, ...	30	S.	. .	Heidelberg shaft, . .	Avoca, Luzerne county, ...	Severely injured by being caught by oil box of car.
19,	162	James Meenan, ...	Helper, ...	43	M.	. .	Midvale slope, . .	Plains, Luzerne county, ...	Leg severely injured by fall of coal.
24,	163	Thomas Williams, ...	Miner, ...	42	M.	6	Mear Spring shaft, . .	Pittston, Luzerne county, ...	Leg severely injured by fall of rock.
Nov. 6,	164	Charles Palmer, ...	Miner, ...	35	S.	. .	Stevens slope, . .	do.	Arm severely injured by fall of rock.
14,	165	Frank Musik, ...	Miner, ...	26	S.	. .	Matty shaft, ...	Kingston twp. Luzerne county, . .	Arm and leg fully cut by a piece of coal flying from a blast.
16,	165	Stephen Tursavage, ...	Miner, ...	26	S.	. .	Clear Spring shaft, . .	Pittston, Luzerne county, ...	Severely injured by going back to blast, thinking it had missed.
16,	167	Charles Jones, ...	Door boy, . . .	14	S.	. .	Keystone slope, . .	Plains twp., Luzerne county, . .	Head severely injured by being kicked by a mule.
27,	168	Richard Abrams, ...	Driver, ...	15	S.	. .	Exeter shaft, ...	Pittston, Luzerne county, ...	Arm broken by being thrown from a mule.
28,	169	Thomas Heffern, ...	Laborer, ...	27	S.	. .	Columbia shaft, . .	Duryea, Luzerne county, ...	Head severely injured by gate over shaft breaking and part falling on him.
Dec. 8,	170	John Shubar, ...	Miner, ...	24	S.	. .	Keystone slope, . .	Plains twp., Luzerne county, . .	Foot painfully bruised by fall of rock.
8,	171	Andrew Pothollow, ...	Miner, ...	28	M.	. .	do.	do.	Small bone of leg fractured by being struck by a car.
14,	172	Richard Evans, ...	Laborer, ...	34	M.	2	No. 4 shaft, ...	Pittston, Luzerne county, ...	While tamping a blast it exploded, cutting them about head and face.
14,	173	George Gill, ...	Laborer, ...	28	S.	. .	Schooly breaker, . .	do.	Severely bruised by falling from breaker root while closing sky-light.
15,	174	Walter Demeravage, ...	Slate picker, . .	20	S.	. .	Schooly breaker, . .	Exeter bor., Luzerne county, . .	Face and hands painfully burned by his lamp falling into a keg of powder.
20,	175	George Bowen, ...	Miner, ...	40	M.	. .	H'ld'g No 2 shaft, . .	Pittston bor., Luzerne county, . .	Severely bruised by fall of bone.
22,	176	H. H. Williams, ...	Miner, ...	50	M.	2	Schooly breaker, . .	Exeter twp., Luzerne county, . .	Severely bruised while unhooking rope by falling in from the car.
26,	177	George Only, ...	Headman, . . .	20	S.	. .	Cons dated, outside, .	Avoca, Luzerne county, ...	Leg broken by fall of rock.
27,	178	William Voigt, ...	Miner, ...	23	S.	. .	Mt. Lookout shaft, . .	Wyoming, Luzerne county, ...	

FOURTH ANTHRACITE DISTRICT.

(LUZERNE COUNTY.)

Wilkes-Barre, Pa., March 31, 1894.

Hon. Thomas J. Stewart, Secretary of Internal Affairs:

Sir: I have the honor of presenting my annual report as Inspector of Mines for the Fourth Anthracite District for the year 1893.

It contains the usual statistics relating to the quantity of coal mined, quantity shipped to market, number of employes and lists of the casualties, both fatal and non-fatal.

It also has information regarding the improvements in the mines, and a description of the serious explosions which occurred in the district during the year 1893.

Yours very respectfully,

G. M. WILLIAMS,

Inspector of Mines.

TONS OF COAL MINED DURING THE YEAR, 1893.

Lehigh and Wilkes-Barre Coal Company, ...	2,257,431.75
Delaware and Hudson Canal Company, ...	1,347,943.75
Susquehanna Coal Company, ...	1,453,462.05
Kingston Coal Company, ...	1,001,721.90
Delaware, Lackawanna and Western Railroad Company, ...	451,530.05
Lehigh Valley Coal Company, ...	258,148.25
Red Ash Coal Company, ...	293,394.20
Alden Coal Company, ...	203,597.10
Plymouth Coal Company, ...	178,113.50
Parrish Coal Company, ...	126,923.60
West End Coal Company, ...	152,945.10
Hanover Coal Company, ...	98,288.95
Hillman Vein Coal Company, ...	89,685.55
A. J. Davis, ...	93,249.20
Newport Coal Company, ...	59,334.00

Total, ...	8,065,768.95
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Number of Fatal Accidents and Tons of Coal Mined per Life Lost.

Names of Operators.	Number of lives lost.	Tons of coal mined per life lost.
Lehigh and Wilkes-Barre Coal Company, ...	20	112, 871
Delaware and Hudson Canal Company, ...	6	224, 657
Susquehanna Coal Company, ...	17	85, 497
Kingston Coal Company, ...	12	83, 476
Delaware, Lackawanna and Western Railroad Company, ...	3	150, 510
Lehigh Valley Coal Company, ...	3	86, 049
Red Ash Coal Company, ...	5	58, 678
Alden Coal Company, ...	5	40, 719
Plymouth Coal Company, ...	3	59, 371
Parrish Coal Company, ...	No fatalities.	
West End Coal Company, ...	No fatalities.	
Hanover Coal Company, ...	No fatalities.	
Hillman Vein Coal Company, ...	1	89, 685
A. J. Davis, ...	1	93, 249
Newport Coal Company, ...	1	59, 334
Total, ...	77	Average, 104, 750

Number of Non-Fatal Accidents and Tons of Coal Mined per Person Seriously Injured.

Names of Operators.	Number of persons injured.	Tons of coal mined per per- son injured.
Lehigh and Wilkes-Barre Coal Company, ...	64	35, 272
Delaware and Hudson Canal Company, ...	31	43, 482
Susquehanna Coal Company, ...	52	27, 951
Kingston Coal Company, ...	24	40, 068
Delaware, Lackawanna and Western Railroad Company, ...	14	32, 252
Lehigh Valley Coal Company, ...	5	51, 629
Red Ash Coal Company, ...	4	73, 348
Alden Coal Company, ...	5	40, 719
Plymouth Coal Company, ...	8	22, 264
Parrish Coal Company, ...	4	31, 730
West End Coal Company, ...	2	76, 472
Hanover Coal Company, ...	1	98, 288
Hillman Vein Coal Company, ...	2	44, 842
A. J. Davis, ...	4	23, 312
Newport Coal Company, ...	1	59, 334
Total, ...	221	36, 496

Number of Fatal and Non-fatal, Serious Accidents, and Tons of Coal Mined per Each Person Killed or Injured.

Names of Operators,	Number killed or injured.	Tons of coal mined per person killed or injured.
Lehigh and Wilkes-Barre Coal Company, ...	84	26,874
Delaware and Hudson Canal Company, ...	37	36,430
Susquehanna Coal Company, ...	69	21,064
Kingston Coal Company, ...	36	27,825
Delaware, Lackawanna and Western Railroad Company, ...	17	26,560
Lehigh Valley Coal Company, ...	8	32,268
Red Ash Coal Company, ...	9	32,599
Alden Coal Company, ...	10	20,359
Plymouth Coal Company, ...	11	16,192
Parrish Coal Company, ...	4	31,730
West End Coal Company, ...	2	76,472
Hanover Coal Company, ...	1	98,288
Hillman Vein Coal Company, ...	3	29,895
A. J. Davis, ...	5	18,649
Newport Coal Company, ...	2	29,667
Total, ...	298	Average, 27,066

The above tables do not include the seven fatal and eleven non-fatal accidents which occurred in sinking shafts which were not producing coal.

Classification of Fatal and Non-fatal Accidents.

Causes of Accidents.	Killed or fatally injured.	Severely injured.
By explosions of carburetted hydrogen gas, ...	22	46
By falls of roof and coal, ...	40	
By falling down shafts, ...	2	
Crushed and run over by mine cars, ...	12	
By explosions of powder and blasts, ...	4	
By miscellaneous causes underground, ...		28
By miscellaneous causes on surface, ...	4	26
Totals, ...	84	232

The number of widows left was 49, having 131 children under 21 years of age.

THE CONDITION OF THE MINES.

In viewing the condition of the mines of this district, a general improvement becomes apparent in the methods of conducting the workings, in the production and distribution of the ventilation, and in the appliances used for haulage, hoisting and pumping. It is not many

years since nearly every mine was ventilated by a furnace, but with the introduction of the fan, a machine much safer and more effective, the furnace, in a few years, was driven out of use and was superseded by it. Now every mine is ventilated by one or more of these machines, and each is producing from 60,000 to 250,000 cubic feet of air-current per minute, varying according to their size, running speed and the length of the air passages of the mines upon which they are located.

Effective improvements have been also made in the manner of conducting and distributing the air currents. In former years the general practice was to conduct the current in one continuous stream through all the air passages of the mine, so that by the time it passed through the last half of the working places, it was so charged with noxious gases that it was not fit for respiration, and was exceedingly unhealthy to breathe. But at present, in every mine, the air is divided into a number of separate currents, or splits, each ventilating a section having no more than 75 persons working therein, and in most cases a less number. By this method the aggregate quantity of air current is much increased without increasing the power producing it. Therefore it has proven to be the most economical method, as well as the most healthful and the safest for the workmen. A judicious system of splitting the air currents is now considered absolutely necessary, and its adoption has effected a very important improvement in the condition of all the mines.

In many mines steam boilers were located under ground where it was necessary to have steam to run underground hoisting engines and pumps. The heat from the fires under the boilers was the cause of many disastrous mine fires, and in time all the boilers were removed to the surface and the mines are safer in consequence. After this, steam pipes were laid from the boilers on surface into the mines for the purpose of running the hoisting engines and pumps, and in most cases the heat radiating from the steam pipes had a detrimental effect upon the ventilation by heating the air to an unhealthful degree and causing it to become sluggish in its passage through the mines. This suggested the propriety of placing the hoisting engines for underground slopes on the surface and of having bore holes for the ropes to pass into the mine at the head of the slopes to hoist the cars. The invention of electric signals made it easier and cheaper, as it is not necessary to have separate bore holes, since the wires can be conducted through the shafts to any point required for signalling purposes. The removal of the large steam pipes formerly used to convey steam to the hoisting engines was a beneficial improvement in all cases, and they have been removed in all the mines of this district.

The use of steam for running pumps has become a source of more or less annoyance in most of the mines, but the gradual introduction

of compressed air or electricity will in time banish the steam pipes from the mines. The Kingston Coal Company, at their Edwardsville collieries, the Plymouth Coal Company at their Dodson colliery, and the Lehigh and Wilkes-Barre at their Nottingham colliery, are running their underground pumps with compressed air, and the Delaware, Lackawanna and Western Railroad Company at their Woodward colliery, run the underground pump with electricity. Thus, it will be seen that the condition of the underground workings of the mines is progressing continually toward a safer and better condition of things.

RECORD OF IMPROVEMENTS FOR 1893.

Some important improvements were made at several of the collieries during the year 1893, which are described in detail in the following statement:

Improvements by the Lehigh and Wilkes-Barre Coal Company.

In the Hollenback No. 2 colliery, a tunnel was driven through a fault in the red ash seam. It is 200 feet long and 7x12 feet in size. At the No. 5 South Wilkes-Barre colliery a tunnel was driven from the Baltimore to what is designated as the Stanton seam. It is a horizontal tunnel, 700 feet long and 7x14 feet area. A second opening was driven for this seam also, rising on a grade of 7 degrees. It cut the seam at a length of 500 feet and it has a sectional area of 165 feet.

Another tunnel was driven from the Kidney to the Hillman seam, a length of 475 feet, and 7x12 feet area. These tunnels have opened a large area of coal for this colliery. The sinking of a new air shaft for this mine was completed to a depth of 90 feet by the end of the year. Its size is 12x37 feet and was sunk for the sole purpose of increasing their already large volume of ventilation.

At the Maxwell colliery, preparations are made to have work ready by the time the new shaft is sunk to the Baltimore seam. This work is done from the lower lifts in the Jersey No. 8 colliery. Tunnels were driven from the two lower lifts of the Baltimore seam to the red ash. Each of these tunnels will open the Ross and the red ash seams, so that when the shaft is completed to the Baltimore seam enough workings will be ready opened to furnish a considerable quantity of coal.

The sinking of the Maxwell shaft was commenced in the year 1892, and at the close of that year it was down to a depth of 134 feet. During the year 1893 the sinking was suspended for several months, but at the close of the year it was down a depth of 400 feet. Its size is 12x54 feet.

A new slope was sunk a short distance west of the shaft from the surface to open work on the Hillman seam. Its size is 6½x12 feet,

and at the end of the year it was driven to a length of 440 feet on grade of 20 degrees.

This will also open some coal for the Maxwell breaker in addition to the production of the shaft.

The woodwork of the Maxwell breaker is completed ready to be equipped with machinery. It will be ready to prepare coal for the market by the time the shaft is completed.

At the No. 9 colliery, Sugar Notch, the underground slope was extended a distance of 300 feet where a new lift was opened. A rock tunnel was driven on a rise of 45 degrees, having an area of $12\frac{1}{2} \times 8\frac{1}{2}$ feet, and a length of 104 feet, for the purpose of improving the ventilation.

At the Lance No. 11 colliery important improvements are in progress and some were completed. A new underground slope was sunk, extending farther south than the bottom of the old slope. It is 800 feet long on a grade of 8 degrees and opens a considerable area of coal which has been hitherto unavailable.

An air passage was driven, also, through rock a distance of 200 feet, having a sectional area of 84 square feet.

A new air shaft is in progress of sinking for this colliery for the purpose of enlarging the volume of air. Its size is 12x30 feet, and it was at a depth of 300 feet at the end of the year.

At the Nottingham colliery a great improvement has been made by the introduction of compressed air to run the underground pumps, instead of steam. There are 8 pumps used in this mine, and the steam necessary to run them heated the air to an almost intolerable degree. The two duplex Ingersoll air compressors, with Corliss engines, were located on the surface. Their size is $28 \times 34\frac{1}{4} \times 48$ inches, having a capacity for producing 11,000 cubic feet of free air per minute. One pair furnishes sufficient air to run the 8 pumps and one is operated during the day and the other during the night. The farthest pump is at a distance of 7,200 feet from the compressors. The air pipe to the first pumps is 14 inches diameter, and from there to the other pumps 12 inches. They are working satisfactorily, and the temperature of the mine ventilation has been greatly reduced.

At the Wanamic, No. 18, colliery a short tunnel was driven from the Baltimore to work the Cooper seam. Its size is 7x12 feet, and its length 175 feet.

Improvements by the Delaware and Hudson Canal Company.

At the No. 2 Baltimore colliery a new underground slope was driven a distance of 450 feet on a dip of 20 degrees to work the coal of the red ash seam below the level of the shaft.

At the No. 3 Baltimore they are sinking an underground slope on the red ash seam and it was down a depth of 600 feet at the end of

the year. The hoisting engines for both these slopes are located on the surface, the ropes passing down through bore holes.

At the Boston colliery, several hundred feet east of the old shaft, a new shaft has been started. It is intended to sink it from the surface to the red ash seam. Its size is $12 \times 33\frac{1}{2}$ feet and it was sunk to a depth of 110 feet by the end of the year 1893.

The sinking of another shaft is in progress by this company about a quarter of a mile east of the No. 5 shaft. It was sunk at the close of the year to a depth of 115 feet. Its size is $10\frac{1}{2} \times 33\frac{1}{2}$ feet.

Improvements by the Susquehanna Coal Company.

At the No. 1 shaft a slope was made through old workings a length of 1,400 feet on a dip of $8\frac{1}{2}$ degrees; size 8×16 feet.

Another slope is being sunk in the George seam. Its size is 8×16 feet and it was at a length of 1,000 on an average dip of $8\frac{1}{2}$ degrees at the end of the year.

A new tunnel was driven from the Forge to the Mills seam a length of 800 feet, and a size of 8×14 feet.

At the No. 4 slope, a tunnel 300 feet long was driven from the Mills seam and a rock plane was driven from the Mills to the George seam. Its length is 300 feet; grade, 20 degrees, and size, 8×14 feet.

Improvements by the Delaware, Lackawanna and Western Railroad Company.

At the Avondale colliery a horizontal tunnel was driven through the rock from the red ash to the Ross seam. Its size is 7×10 feet and its length 300 feet. This opens a large area of the Ross seam.

At the Woodward colliery both underground slopes were extended, the one in the red ash seam a length of 306 feet to a total length of 2,019 feet and the slope on the Baltimore seam was extended a length of 372 feet, thus opening in each a new lift. The tunnel mentioned in last year's report, which is being driven from the red ash to cut the Baltimore seam was driven a distance of 486 feet. Its total length now is 1,686 feet. When this tunnel is completed it is intended to haul the coal of the Baltimore seam below a certain line in the slope out through it to the foot of the red ash shaft, where it will be hoisted to the surface.

The three new shafts in progress of sinking by this company in Hanover township are not yet completed. The Bliss shaft was at a depth of 669 feet. The Auchincloss No. 1 at a depth of 661 feet, and the Auchincloss No. 2 at a depth of 659 feet. The size of each shaft is 12×43 feet 3 inches.

Improvements by the Parrish Coal Company.

At the Parrish colliery a new air shaft was sunk to a depth of 60 feet, having a sectional area of 216 square feet. For the purpose of

improving the ventilation a 24-foot Guibal fan was erected, run by a horizontal engine, 20x36-inch. Under a speed of 50 revolutions and one inch water gauge, it is exhausting 120,000 cubic feet of air per minute. The upcast has an area of 136 feet and the downcast an area of 100 square feet.

The Buttonwood shaft, which is an opening for a new colliery, was sunk to a depth of 680 feet, having cut four coal seams. The air shaft connected therewith is at a depth of 400 feet, having a sectional area of 12x22 feet.

The new breaker is in course of construction and will be ready to ship coal to market some time in 1894.

Improvements by the Newport Coal Company.

At the Lee colliery a new shaft was sunk to work the basin south of the breaker. Its size is 12x15 feet and depth at present 200 feet, and it has cut the Hillman and the upper split of the Baltimore seam. A second opening is effected by connecting to the slope.

PUMPING BY ELECTRICITY.

The first electric pump in this district was introduced into the Woodward colliery of the Delaware, Lackawanna and Western Railroad Company, to be used instead of the steam pump in the red ash seam slope underground. The heat radiating from the steam pipe was detrimental to the ventilation, and in order to dispense with it, the electric pump was introduced on trial and it has proven very satisfactory. The power station is located in the hoisting engine house on surface. The generator is a No. 25 Thomson-Houston machine of 500 volts, driven by a Ball & Wood automatic engine. From the power station two No. 0 B. & S. wires run overground to the air and drop down the shaft to the red ash seam. They simply hang down the shaft from the hangers at the top. From the shaft bottom to the bottom of the slope they are conducted down the return airway, one on each side. The pump is a horizontal triplex, single acting, with bronze outside packed plungers, 6½x8 inches. It is mounted on a truck which constitutes its frame and is furnished with wheels so that it may be quickly moved. It is operated by a 20-horse power motor, the frame of which makes a casing to protect the motor in case of falls or droppings of water. The motor actuates the pump through double reduction cut spin-gears; the high speed pair is running in a gear case filled with oil. On the left of the motor is the rheostat for starting and stopping the machinery. At this point sparks are emitted which would make it unsafe to run in case a squeeze should take place releasing an extra volume of explosive gases. This makes it necessary to keep the steam pump in place ready for emergencies of this character.

ANNUAL EXAMINATIONS FOR CERTIFICATES OF QUALIFICATION FOR MINE FOREMAN AND ASSISTANT MINE FOREMAN.

The examination was held in this district on June 20 and 21 of 1893, at the Union Street School Building, Wilkes-Barre.

The board of examiners were G. M. Williams, Inspector of Mines, of Wilkes-Barre; Elmer H. Lawall, Superintendent of Mines, Wilkes-Barre; Patrick McGann, miner, of Sugar Notch, and David W. Thomas, miner, of Plymouth.

Seven applicants passed a satisfactory examination for mine foreman certificates, and 28 for assistant mine foreman certificates. Those recommended for mine foremen were:

Daniel R. Davies, Plymouth.

James Waddell, Kingston.

David Clocker, Wilkes-Barre.

J. Harvey Faulds, Wilkes-Barre.

John Magee, Laflin.

John S. Lee, Nanticoke.

David J. Williams, Sugar Notch.

THE ACCIDENTS OF 1893.

The total number of persons who were either killed or seriously injured was 316. Of these casualties, 84 were fatal and 232 non-fatal. Seven of the fatal ones and 11 of the non-fatal occurred in new shafts, under process of sinking. There were 9 new shafts being sunk in this district during the year 1893. None of them were completed and the sinking is continued in the year 1894. Sinking deep shafts is a dangerous work and although the greatest care is taken in having safe appliances, accidents occur. But the greater number are caused by small pieces of rock falling from the sides of the shafts. The sinkers, naturally, for their own safety, trim all loose material as they pass down, but disintegration causes pieces of rock to become loose after the shaft is sunk several feet below, and these pieces of rock falling and striking men at the bottom are the most frequent causes of accidents in new shafts.

The number of accidents in the coal producing collieries was 77 and the non-fatal accidents 221. There is nothing new to state regarding these. The greater number occurred, as usual, from falls of roof and coal. Forty fatal and 65 non-fatal were caused by falls. The miner and his laborer are all the time while at work in danger from falls, either of the roof or of the coal at the face of their working place. Where the top is really bad and dangerous, accidents rarely occur, because the workmen are at all times on the alert watching and securing their places. But it is in places where no danger is apprehended that the most of the accidents from falls of roof occur.

As to the accidents from falls of coal, the greater number occur because the miner is too eager to return to work after blasting, or does not take proper precaution to examine the face, and ascertain whether or not there are dangerous pieces of coal hanging before beginning to work, and accidents take place frequently because the miner does not stand in a safe position when he has to pry loose coal down; the coal, when falling, either strikes or rolls upon him and causes serious injuries.

The number killed or fatally injured by explosions of fire-damp was 22, and 46 others were more or less injured. By using the precaution that is required by the law, nearly all of these could have been avoided.

What is needed is that no idle place shall be entered with naked light unless it has been examined first with a safety lamp, and that all working places shall be examined with the safety lamp after each brief cessation of work. If this precaution was at all times taken, the presence of fire-damp would be discovered and care would be exercised not to ignite it. This would probably reduce the number of injuries from explosions of fire damp to one-fourth of what they are.

The number of fatal accidents caused in various ways by mine cars was 12, and of the non-fatal ones, 36. The greater number of this class of casualties are the result of the carelessness of the boys employed to haul and to move the cars.

By explosions of powder and premature blasts there were 4 fatal and 27 non-fatal accidents. Some of these occurred through the careless handling of powder; others because the victims made the match too short when firing blasts, so that the blasts fired before they had time to get away, and the others by returning, believing the squibs had missed fire and the blasts exploding when they were approaching.

Death of a Mine Superintendent at Dorrance Colliery.

William Samuel, aged 54 years, a mine superintendent of the Lehigh Valley Coal Company, was killed in the Dorrance colliery in the afternoon of Friday, April 7, 1893, under the following circumstances: He and his brother Thomas, who was the foreman of the mine, under William, descended the mine together shortly after noon. William stepped off to the Hillman seam while Thomas descended to the Baltimore seam. He did not tell his brother where he intended to go and the latter had no apprehension of danger, believing that he was only going to see some part of the workings in the Hillman seam. Late in the evening, being much later than usual, and he not having come home from work, his family sent word to Thomas to inquire where William was. The latter, accompanied by Hiram Smith, assistant foreman, went into the mine and found the return air of the

Bowley seam densely charged with smoke, indicating the existence of a fire in the working of that seam. The workings of the Bowley seam consisted of only one gangway and its return airway. This seam is the one next above the Hillman seam. A horizontal tunnel had been driven through the upper measures across a basin. This tunnel passed through the Bowley and Abbott seams. The gangway in which the accident occurred had been driven about five years prior to this time, from the said tunnel east, a length of about 1,200 feet, and it had been idle ever since. The timbering had rotted and the fire-clay roof had fallen nearly the whole length of the gangway, leaving a varying height of from $3\frac{1}{2}$ to 5 feet over the falls. Thomas Samuel and Smith went into this gangway over the fallen roof and when within about 100 feet of the face, found timber on fire and smoke too dense for them to attempt to go farther. They summoned help at once and set parties to carrying water in buckets, and others to lay pipe and hose. They did not succeed in extinguishing the fire, however, until they had a stream of water on through the pipe and hose. When this was accomplished, the smoke was cleared in a short time by increasing the air current and building brattice to convey it forward to the face. The body of William Samuel was found lying across close to the face of the gangway. He was severely burned on face and hands. His naked lamp, a large one with a handle, was found set on the fall about 25 feet back from the face of the gangway and about the same distance farther in than where the air current returned. Evidently he had ignited a small quantity of fire-damp and was burned, got confused and crawled towards the face instead of outwards, and was suffocated by the afterdamp and smoke. His body was found at 8.30 a. m. Saturday.

It is a profound mystery that a man of his character and experience should have gone into such a place without a safety lamp. He was an excellent manager, of large experience in gaseous mines, a rigid disciplinarian, careful and cautious, and was growing more so in later years. A man of great courage and good judgment in dangerous situations; yet he lost his life in a simple, unnecessary manner.

Explosion of Gas in the No. 1 Shaft, Nanticoke.

At about 4.30 p. m., Thursday, June 22, an explosion of fire-damp took place near the face of the sixth lift of the underground slope in the Firge seam, known as No. 9 slope, in the No. 1 shaft of the Susquehanna Coal Company at Nanticoke, which resulted in the death of Abram Walker, miner, aged 30 years; John T. Smith, miner, aged 36 years; Frank Woland, laborer, aged 24 years; John Malinofsky, laborer, aged 32 years, and Frank Beenick, doortender, aged 15 years, and injuring John H. Gwyne, driver, and John Wiesgabel, laborer.

The sixth lift was on the east side and was in a long distance. Within about 800 feet of the face it made a very short bend around a narrow anticlinal. A short distance inside of the bend a new connecting road, or section road, was made, to bring the coal from the parallel counter gangway above. The gangway was the intake and the counter gangway the return. A short distance inside the connecting road, on the counter gangway, two breasts had been driven up the pitch a short distance from the counter-gangway. These breasts were connected by a cross-heading at the face, and a door across the gangway between the two, diverted the air current up to their faces. Another door across the section road kept the air circulating along the face of the gangways. Walker and the two deceased laborers were driving the counter-gangway, and Smith and Wiesgabel were driving the gangway. Both parties had completed their day's work and had agreed to go out together, when the driver came in with two empty cars. He left these standing on the gangway at the section branch and sent the door-boy with the mule to haul Smith's loaded car back. In the meantime the driver went up the counter to see if Walker had a car loaded. On his return he hitched his mule to the two empty cars, intending to pull them up the section branch, and at that time a terrific explosion occurred, destroying the air stoppings for a long distance back. The officials of the mine felt the concussion of the explosion and took rescuers in to their relief as quickly as possible. They found Wiesgabel, Gwyne and the doorboy Beenick alive and took them out, but they were not able to reach the others until means were taken to send the air-currents forward so as to clear the after-damp, and this took several hours. When found all were dead.

It is evident that the gas accumulated in the two short breasts while the doors were open and that it ignited from the lights of one of the men coming out by the counter-gangway. The rescuers did all in their power to reach them without delay but found it impossible without restoring the ventilation.

A Fatal Explosion in the No. 4 Shaft, Kingston Coal Company.

At about 12 o'clock, Friday, July 21, 1893, four persons were fatally injured by an explosion of fire-damp in No. 3 underground slope of the No. 4 shaft of the Kingston Coal Company. The victims were William B. Jones, miner; Patrick O. Mallia, miner; Benjamin Wilson, miner, and Matthew Brennan, driver.

All died during the following two days.

A section of roof had fallen, breaking the brattice down at a point 50 feet back from the face of gangway a short distance inside of the brattice door and opposite the heading where the air current passed down to the airway. The three men were engaged timbering and

clearing this fall. They worked with safety lamps at the fall and knew that there was a body of gas along the roof from the cavity of the fall in towards the face. Outside of the brattice door they had naked lights. Just after eating their dinner, the driver being with them, having brought a car in with timber on, two of the men with naked lights on their hats stepped on the bumpers of the car, one at each end, to roll the timber off, and the gas tailing back above the collars to that point ignited from one of the naked lamps. All were severely burned and all died. A fire boss had been with them all morning, but at this time he had gone back to the bottom of the slope to eat his dinner and escaped uninjured.

A Fatal Explosion of Gas in the Lance No. 11 Colliery, of the Lehigh and Wilkes-Barre Coal Company, at Plymouth.

The accident occurred at 2 p. m., Thursday, September 21, and the following persons lost their lives: Joshua Golightly, assistant foreman; Owen P. Jones, mason; John Flanagan, mason; David M. Jones, contractor, and William Jones, miner, lived a short time. Two others were severely injured, viz: Thomas Williams, miner, and Owen L. Evans, blacksmith.

They were making preparations to make a change in one of the air splits. Two parallel breasts had been driven from one lift to another on the Cooper seam, but only one was driven all the way through and this was temporarily closed with boards, having a slide door to enable persons to pass through.

A shaft was driven up through the rock from the Bennett seam connecting to the side of one of the breasts mentioned in the Cooper seam. This was to be used for an air passage. David M. Jones, the contractor, and his men, William Jones, Thomas Williams and Owen L. Evans, were at the bottom of this shaft about to finish cleaning it out. The masons, Owen B. Jones, John Flanagan and Joseph Cummings, were building a wall across the lower end of each of the two breasts in the Cooper seam. The wall had been completed across one and they had nearly finished the other. They were on the lower side while John Flanagan, Jr., and another young man, were on the upper side.

This was the situation when the assistant foreman, Joshua Golightly, approached the slide door and perhaps passed through with a naked light at the upper end of the breasts, where, evidently unexpected by him, gas had accumulated and it ignited from his lamp. The concussion forced the wall down upon the three masons, killing two instantly and injuring the other fatally. The two above the wall escaped unhurt. Two of the four at the bottom of the air shaft were instantly killed by the concussion, and the other two severely injured.

Mr. Golightly's body was found severely burned near the place where the explosion took place. His safety lamp was in his pocket, and his naked lamp close by his body. These circumstances show that the gas accumulated somewhere close to the temporary stopping in which the slide door was placed, and Mr. Golightly had been seen carrying his naked lamp in going down towards this slide door about two minutes before the explosion took place.

TABLE I—Showing Location, etc., of Collieries in the Fourth Anthracite District.

Name of Colliery.	Name of Operator.	Location—Luzerne County.	Name of Superintendent.	Postoffice Address.
Hollenback, Empire, ...	Lehigh and Wilkes-Barre Coal Company, . . .	Wilkes-Barre, ...	Elmer H. Lawall, general manager; Wm. J. Richards, chief mining engineer; Morgan R. Morgan, inside superintendent; W. H. Herring, outside superintendent.	Wilkes-Barre, Pa.
Stanton, ...	do.	do.		
South Wilkes-Barre, ...	do.	do.		
Jersey No. 8, ...	do.	Ashley, ...		
Maxwell No. 20, ...	do.	Sugar Notch, ...		
Shaft No. 9, ...	do.	Plymouth, ...		
Lance No. 11, ...	do.	do.		
Nottingham No. 15, ...	do.	Wanamie, ...		
Reynolds No. 13, ...	do.	Wilkes-Barre, ...		
Warramie No. 18 and 19, ...	do.	do.		
Baltimore shaft No. 2, ...	Delaware and Hudson Canal Company, . . .	do.		
Baltimore shaft No. 3, ...	do.	do.	A. H. Vandling, general manager; C. H. Sharar, chief mining engineer.	Providence, Scranton, Pa.
Corrynghan, ...	do.	Plymouth, ...		
Boston, ...	do.	do.		
No. 2 Plymouth, ...	do.	do.		
No. 3 Plymouth, ...	do.	do.		
No. 4 Plymouth, ...	do.	do.		
No. 5 Plymouth, ...	do.	do.		
No. 2 slope, ...	Susquehanna Coal Company, ...	Nanticoke, ...	Irving A. Stearns, general manager; J. H. Bowden, chief mining engineer; George T. Morgan, general superintendent.	Wilkes-Barre and Nanticoke, Pa.
No. 3 colliery, ...	do.	West Nanticoke, ...		
No. 4 slope, ...	do.	Nanticoke, ...		
No. 1 shaft, ...	do.	do.		
No. 2 shaft, ...	do.	Glen Lyon, ...		
No. 3 shaft, ...	do.	do.		
No. 6 slope, ...	do.	do.		
No. 6 tunnel, ...	do.	Edwardsdale, ...		
No. 1 shaft, ...	Kingston Coal Company, ...	do.	Daniel Edwards, general superintendent; Gwilym Edwards and Morgan D. Rosser, assistant superintendents.	Kingston, Pa.
No. 2 shaft, ...	do.	do.		
No. 3 shaft, ...	do.	Plymouth, ...		
No. 4 shaft, ...	do.	do.		
Gaylord, ...	do.	do.		
Avondale, ...	Delaware, Lackawanna and Western R. R. Co., . . .	Plymouth township, ...	W. R. Storrs, general manager; W. H. Storrs, general outside superintendent; B. Hughes, general inside superintendent; John F. Snyder, chief mining engineer.	Scranton, Pa.
woodward, ...	do.	do.		
Bliss, ...	do.	Hanover township, ...		
Auchincloss, ...	do.	do.		
Dorrance, ...	Lehigh Valley Coal Company, ...	Wilkes-Barre, ...	W. A. Lathrop, ...	Wilkes-Barre, Pa.
Franklin, ...	do.	do.		
No. 1 Red Ash, ...	Red Ash Coal Company, ...	do.	M. B. Williams, ...	Wilkes-Barre, Pa.
No. 2 Red Ash, ...	do.	Alden, ...	K. M. Smith, ...	Alden Station, Pa.
Alden, ...	Alden Coal Company, ...	Plymouth, ...	James B. Davies, ...	Plymouth, Pa.
Dodson, ...	Plymouth Coal Company, ...			

TABLE I—Continued.

Name of Colliery.	Name of Operator.	Location—Luzerne County.	Name of Superintendent.	Postoffice Address.
Parrish, ...	Parrish Coal Company, ...	Plymouth, ...	H. H. Ashley, ...	Plymouth,
West End, ...	West End Coal Company, ...	Mocanaqua, ...	Charles Conyngham, ...	Wilkes-Barre and Shicksh'ny.
Lee, ...	Newport Coal Company, ...	Newport township, ...	Charles Parrish, ...	Wilkes-Barre, Pa.,
Maffet, ...	Hanover Coal Company, ...	Sugar Notch, ...	Jacob Roberts, Jr., ...	do.
Hillman Ye'n, ...	Hillman Vein Coal Company, ...	Wilkes-Barre, ...	S. J. Tonkin, ...	do.
Warrior Run, ...	A. J. Davis, ...	Hanover township, ...	A. J. Davis, ...	do.

TABLE NO. 2.—Gives the total number of tons of coal mined in each colliery, number of days worked, number of employees, number of persons killed and injured, number of kegs of powder used, &c., in the Fourth Anthracite Mine District, for the year ending December 31, 1893.

Names of Collieries.	Location.	Total production in tons of coal.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.	Number mine locomotives.
<i>Lehigh and Wilkes-Barre Coal Company.</i>											
1. Hollenback No. 2.	Wilkes-Barre.	137,756.70	119,914.20	164.80	463	3	8	4,848	39	53	..
2. Empire No. 4.	do.	237,606.25	234,632.25	167.40	798	..	7	6,498	30	78	2
3. South Wilkes-Barre No. 5.	do.	238,892.00	238,189.35	185.65	791	1	10	7,759	16	66	1
4. Stanton No. 7.	do.	219,496.05	206,771.35	175.70	666	1	12	4,667	45	40	1
5. Jersey No. 8.	Ashley.	106,211.20	100,407.70	153.40	552	..	2	5,272	32	40	1
6. Sugar Notch No. 9.	Sugar Notch.	191,716.20	189,073.70	170.15	663	2	5	7,682	25	63	1
7. Lance No. 11.	Plymouth.	239,334.15	237,590.15	177.55	688	7	6	6,766	20	85	..
8. Nottingham No. 15.	do.	416,625.80	410,797.16	181.80	1,052	4	9	10,370	39	115	2
9. Reynolds No. 16.	do.	183,799.20	183,799.20	183.85	513	..	1	4,687	19	79	1
10. Wanamie Nos. 18 and 19.	Wanamie.	225,863.00	223,736.60	163.90	674	2	4	6,119	28	98	2
Totals.		2,257,431.75	2,194,371.66	*171.72	6,840	20	64	62,668	293	747	11
<i>Delaware and Hudson Canal Company.</i>											
11. Baltimore shaft No. 2.	Wilkes-Barre.	97,633.30	97,633.30	197.50	359	..	3	4,343	18	28	..
12. Baltimore shaft No. 3.	do.	90,890.65	90,890.65	208.75	387	1	1	3,278	24	49	..
13. Baltimore tunnel.	do.	134,823.50	131,005.00	216.50	391	..	3	4,538	24	49	2
14. Conyngham.	do.	116,540.75	109,537.55	227.00	381	..	15	4,551	28	36	..
15. Boston.	Plymouth township.	158,042.60	151,742.60	188.00	324	1	5	3,609	15	38	..
16. Shaft No. 2.	Plymouth.	210,568.30	210,568.30	214.50	418	1	1	4,503	27	58	..
17. Shaft No. 3.	do.	219,044.50	216,744.50	222.50	453	1	2	7,739	21	57	..
18. Shaft No. 4.	do.	161,167.25	161,167.25	216.25	431	1	..	5,349	15	53	..
19. Shaft No. 5.	do.	159,792.90	154,617.90	184.50	325	1	1	3,565	21	49	1
Totals.		1,347,943.75	1,323,867.05	*207.83	3,469	6	31	41,775	193	417	3
<i>Susquehanna Coal Company.</i>											
20. No. 1 shaft.	Nanticoke.	..	..	..	..	7	11	..	..	..	..
21. No. 2 slope.		465,356.50	..	232.95	1,159	..	2	..	..	194	8

TABLE NO. 2—Continued.

Names of Collieries.	Location.	Total production in tons of coal.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.	Number mine locomotives.
<i>Susquehanna Coal Company—Continued.</i>											
22. No. 3 colliery, ...	West Nanticoke, ...	62,912.80		108.35	135	1	2		29	25	1
23. No. 2 shaft, {	Nanticoke, ...	491,279.00		243.55	1,214	1	10		78	137	3
24. No. 4 shaft, {											
25. No. 6 shaft, {	Glen Lyon, ...	408,913.75		219.05	1,221	2	11		84	130	2
26. No. 6 slope, {											
27. No. 6 tunnel, {		1,453,462.05	1,431,326.80	200.97	3,729	17	52	30,810	277	486	14
Totals, ...											
<i>Kingston Coal Company.</i>											
28. Shaft No. 1, {	Edwardsdale, ...	250,068.55		209.95	1,030	1	9	7,807	58	89	
29. Shaft No. 4, {	do.	404,544.40	391,077.90	250.90	1,004	1	4	10,457	43	83	3
30. Shaft No. 2, {											
31. Shaft No. 3, {	do.	347,078.65	343,576.65	241.65	780	1	3	11,146	31	90	
32. Gaylord shaft and slope, ...											
Totals, ...		1,001,721.90	984,753.40	254.16	2,814	12	24	29,910	132	262	3
<i>Delaware, Lackawanna and Western R. R. Company.</i>											
33. Ayondale, ...	Plymouth township, do.	177,540.00	156,774.00	175.80	451	. . .	5	4,327	47	66	1
34. Woodward, ...		273,990.05	246,814.05	193.50	795	3	9	6,158	42	92	3
Totals, ...		451,530.05	403,588.05	369.35	1,246	3	14	10,485	89	158	4
<i>Lehigh Valley Coal Company.</i>											
35. Dorrance, ...	Wilkes-Barre, do.	122,866.15	115,255.65	171.10	327	2	3	3,045	20	38	2
36. Franklin, ...		135,782.10	119,045.10	165.22	510	1	2	3,458	42	50	1
Totals, ...		258,148.25	234,300.75	336.32	837	3	5	6,984	62	88	3

Red Ash Coal Company.									
37. Red Ash No. 1,	.....	.....	.....	.....	.....	.....	.....	.....	.....
38. Red Ash No. 2,	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals,	.....	.....	.....	.....	.....	.....	.....	.....	.....
Miscellaneous Coal Companies.									
39. Alden Coal Company,	.....	.....	.....	.....	.....	.....	.....	.....	.....
40. Dodson, Plymouth Coal Company,	.....	.....	.....	.....	.....	.....	.....	.....	.....
41. Parrish Coal Company,	.....	.....	.....	.....	.....	.....	.....	.....	.....
42. Maffet, Hanover Coal Company,	.....	.....	.....	.....	.....	.....	.....	.....	.....
43. West End Coal Company,	.....	.....	.....	.....	.....	.....	.....	.....	.....
44. Hillman Vein Coal Company,	.....	.....	.....	.....	.....	.....	.....	.....	.....
45. Warrior Run, A. J. Davis,	.....	.....	.....	.....	.....	.....	.....	.....	.....
46. Lee Newport Coal Company,	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals,	.....	.....	.....	.....	.....	.....	.....	.....	.....

Wilkes-Barre township, do.	126,430.30 166,963.90	283,394.20	126,430.30 163,638.90	192.80 184.20	358 403	3 2	4 .	4,298 4,884	15 8	21 33	1 .
Alden.	203,597.10	290,049.20	194,012.65	168.05	636	5	5	5,881	20	65	.
Plymouth, do.	178,113.50		173,676.50	215.40	410	3	8	6,489	19	36	.
do.	120,882.10		120,882.10	172.95	447			3,768	34	54	.
Sugar Notch,	98,288.95		97,527.95	175.45	510		1	2,518	12	27	.
Mocanqua,	132,945.10		137,775.80	170.55	242			3,801	23	67	2
do.	89,685.55		64,084.75	175.55	263	1	2	3,154	12	21	.
Wilkes-Barre,	93,249.20		91,762.20	164.45	298	1	2	2,700	29	18	.
Warrior Run,	59,334.00		56,094.00	192.55	218	1	1	1,400	9	24	.
Newport township,											.
Totals,	1,002,137.00		935,845.95	*179.36	3,094	11	27	29,711	158	312	2

Recapitulation.

Lehigh and Wilkes-Barre Coal Company,		2,257,431.75		2,194,371.66		171.72		6,840		20		64		62,668		293		747		11	
Delaware and Hudson Canal Company,	.....	1,347,943.75	.....	1,323,877.05	.....	207.83	.....	3,469	.....	6	.....	31	.....	41,775	.....	193	.....	417	.....	3	.....
Southern Coal Company,	.....	1,453,462.05	.....	1,431,326.80	.....	200.97	.....	3,729	.....	17	.....	52	.....	30,810	.....	277	.....	486	.....	14	.....
Kilstone Coal Company,	.....	1,001,721.30	.....	984,753.40	.....	234.16	.....	2,814	.....	12	.....	24	.....	29,910	.....	132	.....	262	.....	3	.....
Delaware, Lackawanna and Western Railroad Company,	.....	451,530.05	.....	403,588.05	.....	184.65	.....	1,246	.....	3	.....	14	.....	10,485	.....	89	.....	158	.....	4	.....
Lehigh Valley Coal Company,	.....	258,148.25	.....	234,300.75	.....	168.16	.....	887	.....	3	.....	5	.....	6,984	.....	62	.....	88	.....	3	.....
Red Ash Coal Company,	.....	293,394.20	.....	290,049.20	.....	188.50	.....	761	.....	5	.....	4	.....	9,182	.....	23	.....	54	.....	1	.....
Miscellaneous coal companies,	.....	1,002,137.00	.....	935,845.95	.....	179.36	.....	3,094	.....	11	.....	27	.....	29,711	.....	158	.....	312	.....	2	.....
Totals,	.....	8,065,768.35	.....	7,798,102.86	.....	*191.91	.....	22,790	.....	77	.....	221	.....	221,555	.....	1,237	.....	2,524	.....	41	.....

* Average.

In addition to the above number of injured and killed there were eleven seriously injured and seven fatally injured in new shafts that were not producing coal, being in process of sinking, viz: Auchincloss No. 1, three injured and three killed; Auchincloss No. 2, two injured; Bliss shaft, two injured and one killed; Buttonwood shafts, one injured and one killed; Alden air shaft, one killed; South Wilkes-Barre air shaft, one killed; Maxwell shaft, two injured, and No. 5, new shaft, Plymouth, one injured. This number added to the list makes a total of 237 seriously injured and 84 fatally injured. There were 439 persons employed around these new shafts, making the total number of employees 23,229.

TABLE No. 3.—*Showing the number of employes at each colliery in the Fourth Anthracite District, during the year 1893.*

Names of Collieries.	Occupations of Persons Employed Inside.							Occupations of Persons Employed Outside.							Grand total inside and outside.
	Inside foreman.	Miners.	Miners' laborers.	All company men.	Drivers and run-ners.	Door boys and helpers.	Total inside.	Outside foremen.	Blacksmiths and carpenters.	Engineers and fire-men.	State pickers.	All other company men.	Superintendents, bookkeepers and clerks.	Total outside.	
<i>Lehigh and Wilkes-Barre Coal Company.</i>															
1. Hollenback No. 2.	1	140	43	40	39	28	291	1	5	17	87	61	1	172	463
2. Empire No. 6.	1	180	186	78	60	36	531	1	4	16	165	80	3	267	798
3. South Wilkes-Barre.	1	148	195	120	38	31	533	1	6	18	130	100	3	258	791
4. Stanton No. 7.	1	127	135	45	56	23	387	1	3	25	177	70	3	279	696
5. Jersey No. 8.	2	96	123	69	18	26	334	2	5	22	112	75	2	218	552
6. Sugar Notch No. 9.	1	163	128	83	40	36	451	1	6	17	126	60	2	212	663
7. Lancee No. 11.	1	120	100	95	85	26	427	1	6	14	160	57	3	241	668
8. Nottingham No. 15.	1	225	220	113	69	25	653	1	7	27	271	91	2	389	1,052
9. Reynolds No. 16.	1	100	106	48	48	21	324	1	3	10	120	54	1	189	513
10. Wanamie Nos. 18 and 19.	2	160	140	51	49	30	432	1	6	14	148	71	2	242	674
Totals, ...	12	1,459	1,376	742	502	272	4,363	11	51	180	1,496	719	20	2,477	6,840
<i>Delaware and Hudson Canal Company.</i>															
11. Baltimore shaft No. 2.	1	58	60	34	38	60	197	1	4	9	120	27	1	162	359
12. Baltimore shaft No. 3.	1	65	65	35	41	3	210	1	5	13	116	41	1	177	387
13. Baltimore tunnel.	1	80	75	36	38	6	236	1	6	16	88	41	3	155	391
14. Conyngham, ...	1	66	66	37	43	16	229	1	5	16	90	39	1	152	381
15. Boston.	1	57	60	34	21	9	182	1	5	11	64	60	1	142	324
16. Shaft No. 2, Plymouth.	1	85	114	52	34	14	280	1	5	15	72	43	2	138	418
17. Shaft No. 3, Plymouth.	1	105	113	51	48	36	354	1	4	14	47	32	1	99	453
18. Shaft No. 4, Plymouth.	1	99	99	49	52	21	321	1	5	10	59	33	2	110	431
19. Shaft No. 5, Plymouth.	1	63	63	55	30	14	226	1	5	9	41	42	1	99	325
Totals, ...	9	678	715	363	345	125	2,235	9	44	113	597	358	13	1,254	3,493
<i>Susquehanna Coal Company.</i>															
20. No. 1 shaft.	3	158	225	226	174	83	879	1	4	31	133	109	2	280	1,159
21. No. 2 shaft.	1	16	30	9	9	...	65	1	3	3	32	31	...	70	135
22. No. 3 colliery.	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23. No. 2 shaft.	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
24. No. 4 shaft.	2	235	370	131	116	49	903	1	28	31	117	132	2	311	1,214

25. No. 6 shaft, { Breaker No. 6, ...	3	238	360	108	155	44	998	1	12	21	99	118	2	253	1,221
26. No. 6 slope, {	9	707	985	484	454	176	2,815	4	47	86	381	380	6	914	3,729
27. No. 6 tunnel, {															
Totals, ...															
<i>Kingston Coal Company.</i>															
28. Shaft No. 1, { Breaker No. 4, ...	2	238	159	133	71	27	630	3	11	17	188	178	3	400	1,030
29. Shaft No. 4, {															
30. Shaft No. 2, { Breaker No. 2, ...	2	264	198	111	75	38	688	3	14	14	164	119	2	316	1,004
31. Shaft No. 3, {	2	141	145	90	82	25	485	1	8	10	191	84	1	295	780
32. Gaylord, ...	6	643	502	334	228	90	1,803	7	33	41	548	381	6	1,011	2,814
Totals, ...															
<i>Delaware, Lackawanna and Western Railroad Company.</i>															
33. Avondale, ...	2	105	100	51	41	8	307	1	5	8	69	61	....	144	451
34. Woodward, ...	1	136	212	53	97	35	584	2	38	17	66	78	....	201	735
Totals, ...	3	301	312	104	138	43	901	3	43	25	135	139	....	345	1,246
<i>Lehigh Valley Coal Company.</i>															
35. Dorrance, ...	2	59	64	27	29	5	186	1	13	15	73	35	4	141	327
36. Franklin, ...	1	110	95	43	45	17	311	1	10	20	99	67	2	199	510
Totals, ...	3	169	159	70	74	22	497	2	23	35	172	102	6	340	837
<i>Red Ash Coal Company.</i>															
37. Red Ash No. 2, ...	1	99	96	16	35	14	261	1	6	4	71	58	1	142	403
38. Red Ash No. 1, ...	2	91	91	20	24	11	238	1	5	7	63	42	2	120	358
Totals, ...	2	190	187	36	59	25	499	2	11	11	134	100	4	262	761
<i>Miscellaneous Companies.</i>															
39. Alden, ...	1	147	150	52	55	31	436	1	12	16	147	68	6	250	686
40. Dodson, ...	1	75	94	78	50	20	318	1	5	8	70	35	3	122	440
41. Parrish, ...	3	58	64	58	29	15	225	1	7	25	100	56	3	192	417
42. Maifet, ...	2	50	42	17	14	7	132	1	4	8	59	53	3	128	260
43. West End, ...	2	135	141	31	45	6	360	1	8	17	60	62	4	152	512
44. William Vein, ...	1	33	33	23	9	14	165	1	2	7	59	26	3	98	263
45. Warrion Run, ...	1	40	40	22	16	12	221	1	5	8	40	20	3	77	238
46. Lee, ...	1	42	50	22	18	1	134	1	4	6	60	10	3	84	218
Totals, ...	10	656	670	313	236	106	1,991	8	47	95	595	330	28	1,103	3,091

Recapitulation.

Names of Collieries.	Occupations of Persons Employed Inside.						Occupations of Persons Employed Outside.								
	Inside foreman.	Miners,	Miners' laborers.	All company men.	Drivers and runners.	Door boys and helpers.	Total.	Outside foremen.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	All other company men.	Superintendents, bookkeepers and clerks.	Total outside.	Grand total inside and outside.
Lehigh and Wilkes-Barre Coal Company, ...	12	1,459	1,376	742	502	272	4,363	11	51	180	1,496	719	20	2,477	6,840
Delaware and Hudson Canal Company, ...	9	678	715	363	345	125	2,235	9	44	113	697	358	13	1,234	3,469
Susquehanna Coal Company, ...	9	707	985	484	454	176	2,815	4	47	86	381	390	6	914	3,729
Kingston Coal Company, ...	6	643	502	334	228	90	1,803	7	33	41	543	381	6	1,011	2,814
Delaware, Lackawanna and Western Railroad Company, ...	3	301	312	104	138	43	901	3	43	25	135	139	.	345	1,246
Lehigh Valley Coal Company, ...	3	169	159	70	74	22	497	2	23	55	172	102	6	340	837
Red Ash Coal Company, ...	2	190	187	36	59	25	499	2	11	11	134	100	4	262	761
Miscellaneous coal companies, ...	10	656	670	313	236	106	1,991	8	47	95	595	330	28	1,103	3,054
Grand totals, ...	54	4,803	4,506	2,446	2,036	859	15,104	46	239	586	4,153	2,519	83	7,086	22,790

TABLE NO. 4.—List of fatal accidents which occurred in and about the Mines of the Fourth Anthracite Mine District, for the year ending December 31, 1893.

Date of accident.	No. of accident.	Name of Person,	Occupation.	Age.	Widow.	No. of orphans.	Name of Colliery.	Location—Inverne County.	Nature and Cause of Accident.
Jan. 1,	1	George Poloney, ...	Slate picker, ...	13			Breaker No. 6, ...	Glen-Lyon, ...	Leg caught in the rolls. Injury proved fatal in a few hours.
17,	2	John Cleary, ...	Laborer, ...	27	1		Red Ash No. 2, ...	Wilkes-Barre twp., ...	Instantly killed by a fall of the middle rock in the Ross seam.
29,	3	William Francis, ...	Driver, ...	16			Shaft No. 1, ...	Edwardsdale, ...	Killed by a fall of rock. A laborer Mike Yonoski was injured by the same fall.
Feb. 2,	4	Henry Gritner, ...	Miner, ...	36			Hollenback, ...	Wilkes-Barre, ...	Instantly killed by a fall of roof near face of breast in Red Ash seam.
8,	5	John Falvey, ...	do.	34	1		Shaft No. 2, ...	Nanticoke, ...	Fatally injured by a fall of rock. Died February 22d.
8,	6	Owen Jones, ...	Driver, ...	16			Shaft No. 9, ...	Sugar Notch, ...	Fell under moving cars and was fatally hurt. Died in a few hours.
11,	7	John Connors, ...	Miner, ...	30	1	7	Boston, ...	Plymouth twp., ...	Fatally injured by a fall of rock near face of breast. Died the same day.
11,	8	Silas Priest, ...	Blacksmith, ...	41	1	3	Alden, ...	Newport twp., ...	Instantly killed by a fall of rock. A short distance back from face of rock tunnel.
16,	9	Stanley Koslowski, ...	Not an employe, ...	19			Nottingham, ...	Plymouth, ...	Got on the wrong side of a trip of cars and was squeezed between them and the rib. He died while being conveyed to the hospital.
20,	10	John B. Edwards, ...	Miner, ...	23	1	1	Hollenback, ...	Wilkes-Barre, ...	Fatally injured by the fall of a small piece of rock on him. He died the same day.
25,	11	Enoch Thomas, ...	Shaft sinker, ...	46	1	4	Auchincloss No. 1, ...	do.	Instantly killed by being struck by a piece of rock which fell from side of shaft.
Mar. 2,	12	John Malshusky, ...	Miner, ...	25	1	1	Slope No. 6, ...	Glen-Lyon, ...	Fatally burned by an explosion of gas. Died March 19th.
8,	13	John Stanolias, ...	do.	27	1		Hillman Vein, ...	Wilkes-Barre, ...	Fatally injured by a fall of coal. Died March 9th.
10,	14	Thomas Griffiths, ...	Runner, ...	19			Alden, ...	Newport twp., ...	Head caught between loaded cars; killed almost instantly.
27,	15	John Mahona, ...	Miner, ...	35	1	2	Shaft No. 1, Forge seam, ...	Nanticoke, ...	Killed by an explosion of gas in a steep place on head of seam.
April 5,	16	Anthony Mischle, ...	Shaft sinker, ...	29			Buttonwood, ...	Hanover twp., ...	Lead broke and tipped near top of shaft and contents fell on him, killing him instantly.

TABLE NO. 4—Continued.

Date of accident.	No. of accident.	Name of Person.	Occupation.	Age.	Widow.	No. of orphans.	Name of Colliery.	Location—Luzerne County.	Nature and Cause of Accident.
5,	17	Adam Ruda, ...	Miner, ...	28	.....	.....	Shaft No. 4, ...	Edwardsdale, . . .	Fatally burned by an explosion of gas. Died April 6th.
5,	18	Simon Silvesky, ...	Laborer, ...	30	1	.....	do.	do.	Fatally burned by an explosion of gas. Died April 9th.
5,	19	William Donaldson, ...	do.	30	.....	.....	Slope No. 4, ...	Nanticoke, ...	Instantly killed by a fall of rock.
7,	20	William Samuel, ...	Superintendent, ...	54	1	1	Dorrance, ...	Wilkes-Barre, . . .	Killed by an explosion of gas in the Bowley vein gangway. (See report.)
17,	21	William M. Lewis, ...	Miner, ...	52	1	4	Dodson, ...	Plymouth, ...	Instantly killed by a fall of rock at face of breast.
18,	22	Peter Carey, ...	Shaft sinker, ...	24	.....	.....	Bliss, ...	Hanover twp., . . .	Fatally injured; a piece of rock fell on him from somewhere above in the shaft. Died the same night.
28,	23	Victor Tanofski, ...	Miner, ...	34	.....	.....	Tunnel No. 6, ...	Glen-Lyon, ...	Powder exploded when he was ramming it into a hole. Died May 4th.
May 1,	24	Daniel H. Richards, ...	do.	31	1	.....	Red Ash No. 1, ...	Wilkes-Barre twp., . . .	Instantly killed by a fall of rock from middle of Ross seam.
1,	25	Mike Museland, ...	do.	42	1	3	Lee, ...	Newport twp., . . .	Fatally injured by a fall of coal; was cautioned against working under it but he did not heed the caution. The coal fell on him and caused his death within five minutes.
8,	26	Frank Sager, ...	Footman, ...	16	.....	.....	Alden, ...	do.	Instantly killed by being struck by a runaway car on inside slope.
17,	27	Thomas Hughes, ...	Driver, ...	17	.....	.....	Shaft No. 9, ...	Sugar Notch, ...	Fell beside a trip of cars and was fatally injured. Died the same day.
19,	28	Christian Umbewust, ...	Miner, ...	31	1	5	Shaft No. 3, ...	South Wilkes-Barre, . . .	Fatally burned by an explosion of a full keg of powder. Died the same night.
June 2,	29	Mike Krego, ...	do.	41	.....	.....	Shaft No. 2, ...	Nanticoke, ...	Killed by a fall of rock when in the act of standing a prop under it.
9,	30	George Fox, ...	Driver, ...	17	.....	.....	Breaker No. 11, ...	Plymouth, ...	Fell under a culmi car on the dump and was fatally injured. Died in less than two hours.
12,	31	John Gilgahan, ...	Laborer, ...	25	.....	.....	Shaft No. 3, ...	Edwardsdale, . . .	Killed by a fall of rock in the Ross seam, in a breast just being opened.
12,	32	John Kropuski, ...	Miner, ...	35	1	3	Gaylord, ...	Plymouth, ...	Killed by the fall of a large pan-shaped piece of slate from the roof.
20,	33	Richard Wright, ...	do.	23	1	6	Shaft No. 3, ...	do.	Instantly killed by a large fall of rock at face of breast in the Five Pond seam. George Anson had his leg cut off by the same fall.

22, 22, 22, 22, 22, 22,	34 35 36 37 38	John T. Smith, Abram Walker, Frank Wolland, John Maknoski, Frank Gennock,	Miner, do. Laborer, do. Door tender,	36 30 34 32 15	1 1 . . .	3 4 . . .	Shaft No. 1, Forge seam, ...	Nanticoke, ...	All killed by an explosion of gas near the face of the Sixth lift in the No. 9 slope. Evidently the gas accumulated because an important door was left open too long. The accident occurred just when the men were ready to go home. John H. Gwynn, the driver, was severely injured by the same explosion. John Welsch, a laborer, was there also, but he was rescued in time to save him from the effects of the after damp.
28,	39	James Morgan,	Driver,	17	.	.	Nottingham, ...	Plymouth, ...	Crushed between a door-post and a car; was injured so that death ensued June 24th.
26,	40	John Kurniareck,	Laborer,	42	1	4	Shaft No. 5, ...	do.	Fatally injured by a fall of bone. Died 24 hours after.
July 6,	41	George Bice,	Miner,	34	1	4	Slope No. 19, ...	Wanamie, ...	Killed by a runaway car at the first left branch.
17,	42	James Grant,	Rockman,	32	1	5	Shaft No. 1, Auchincloss,	Hanover twp., ...	Instantly killed; bunfin broke under a platform when about to lower a pump, causing him to fall down the shaft.
18,	43	Albert Sheminsky,	Miner,	32	1	3	Shaft No. 2, ...	Nanticoke, ...	Fatally injured by a fall of rock. Died in one hour.
18,	44	John Baker,	do.	42	1	.	No. 1 Red Ash, ...	Wilkes-Barre twp., . . .	Fatally hurt by a fall of rock at face of breast. Died in about two hours.
July 24, 24, 24, 24, 24,	45 46 47 48	William B. Jones, Patrick O. Mallon, Benjamin Wilson, Martin Brennan,	Miner, do. do. Driver,	41 35 40 16	3 1 1 .	3 4 5 .	Shaft No. 4, ...	Edwardsdale, ...	All were fatally burned by an explosion of gas in the lower west gangway in the Red Ash seam of No. 3 slope, and all died within two days after the occurrence. They were engaged timbering where a fall of roof had taken place. They knew that a body of gas was present and had sought to escape when going to the timber from a car a short distance back, two of them stepped up on the bumper with naked lights on their hats, and the gas was ignited, presumably from one of the lamps. They were all enveloped in the flame and were fatally burned. Instantly killed by a fall of rock at face of gangway; John Burke, laborer was slightly injured by the same fall.
Aug. 10,	49	Michael Kiely,	Miner,	35	1	1	Hollenback, ...	Wilkes-Barre, ...	Instantly killed by a fall of rock from roof.
11, 15,	50 51	Sammel Waters, Thomas Jones,	Laborer, do.	32 30	.	.	Shaft No. 2, Shaft No. 1 Lee seam, . .	Plymouth, ... Nanticoke, ...	Fatally injured by a fall of a piece of rock from the roof; died in about five hours.
22, 23,	52 53	John Lloyd, Neal Brislin,	Miner, do.	50 46	1 1	2 6	Warrior Run, ... Alden, ...	Warrior Run, ... Newport township, . . .	Severely injured on spine by a fall of rock; died August 27th.
Sept. 1,	54	Patrick Broderick,	Footman,	57	1	.	Dodson, ...	Plymouth, ...	A trip of cars running into lift on slope struck him and ran upon him; he was so badly injured that death ensued in about half an hour.
									Fatally hurt by being crushed between two cars at foot of shaft; died in two hours.

TABLE No. 4—Continued.

Date of accident.	No. of accident.	Name of Person.	Occupation.	Age.	Widow.	Number of orphans.	Name of Colliery.	Location—Luzerne County.	Nature and Cause of Accident.
12.	55	Charles Gaulster, ...	Sinker, ...	23	.....	.....	Auchincloss No. 1, ...	Hanover township, ...	A piece of rock fell from side of shaft and struck him, killing him instantly.
19,	56	John Karasius, ...	Laborer, ...	30	.....	.....	Dorrance, ...	Wilkes-Barre, ...	Instantly killed by a fall of coal from side in the Baltimore seam.
21,	57	Joshua Golightly, ...	Asst. foreman, ...	57	1	.....	.....	.....	All except Cummings were instantly killed, he lived until the 25th. The cause was an explosion of gas in the Cooper seam workings. Preparations were in progress to effect a change in one of the air-splits. Owing to these preparations a body of gas accumulated at a point about 1,000 feet away from where these men were at work.
21,	58	David M. Jones, ...	Contractor, ...	56	1	.....	Lancee No. 11, ...	Plymouth, ...	The assistant foreman, Golightly, is supposed to have gone into the place with a naked light and inadvertently ignited the gas. He was found at that place, burned and suffocated by the after-damp. The others were killed by the concussion of the explosion.
21,	59	Owen P. Jones, ...	Mason, ...	69	W.	6	.....	.....	When William Jones was injured by the same explosion.
21,	60	John Mahagan, ...	do, ...	45	1	6	.....	.....	Instantly killed by a fall of rock at face of breast.
21,	61	Joseph Cummings, ...	do, ...	46	1	1	.....	.....	Killed by a fall of bone coal from roof at face of breast.
21,	62	William Jones, ...	Rockman, ...	44	1	1	.....	.....	Killed by a fall of rock from roof at face of breast.
Oct. 16,	63	Frank Ginianna, ...	Miner, ...	27	.....	.....	Shaft No. 6, ...	Glen Lyon, ...	Burned by an explosion of gas on top of a fall in an old breast; died the same night.
16,	64	William Tomas, ...	do, ...	32	.....	.....	No. 1 Red Ash, ...	Wilkes-Barre twp., ...	Instantly killed by a fall of coal at face of breast.
17,	65	Peter Anzia, ...	Laborer, ...	24	1	1	Slope No. 6, ...	Glen Lyon, ...	Instantly killed by a treacherous piece of rock falling on him at face of gangway
20,	66	Thomas Watkins, ...	Miner, ...	53	1	3	Shaft No. 3, ...	Edwardsdale, ...	Car jumped track and crushed him to death against the rib.
25,	67	Peter Budjela, ...	Laborer, ...	26	.....	.....	No. 2 Red Ash, ...	Wilkes-Barre twp., ...	Partially hurt by a mysterious explosion of dynamite and powder; died while being taken home.
25,	68	Lonis Miller, ...	do, ...	23	1	2	Shaft No. 2, ...	Edwardsdale, ...	
25,	69	Evan Evans, ...	Miner, ...	40	1	6	Woodward No. 2, ...	Plymouth township, ...	
30,	70	Andrew Kosick, ...	Laborer, ...	34	1	1	Stanton, ...	Wilkes-Barre, ...	

30,	71	William R. Jones,	Miner,	54	1	4	Nottingham,	Plymouth,	Killed by a fall of bone and slate at the face of an airway in the Ross seam.
Nov. 6,	72	John W. Foster,	do.	31	1	1	Alden,	Newport township,	Instantly killed by a rush of coal coming upon him from the pillar of a steep pitching breast.
9,	73	John Magur,	Laborer,	26	...	...	Shaft No. 4,	Plymouth,	In some unknown manner he fell down the air-shaft from the Ross to the Red Ash seam and was instantly killed.
10,	74	Charles Watkins,	Slate-picker,	12	...	...	Franklin breaker,	Wilkes-Barre,	Killed by falling and being run over by mine locomotive.
13,	75	John Guskie,	Laborer,	35	1	3	Colliery No. 3,	West Nanticoke,	Killed by a fall of coal at the intersection of a pillar.
13,	76	Nicholas Leonard,	Co-laborer,	50	1	4	Dodson,	Plymouth,	Crushed between a loaded rock car and rib near bottom of shaft; he stepped on
28,	77	Thomas Heffron,	Blacksmith,	25	...	...	Alden air shaft,	Newport township,	Killed by being struck by a piece of one inch gas-pipe bursting; he put it in the fire to thaw when filled with frozen mud and in a few minutes it burst.
Dec. 2,	78	Anthony Tosenski,	Laborer,	33	1	3	Shaft No. 4,	Edwardsdale,	Killed by descending cars on inside gravity plane; went down the plane unknown to the headman.
13,	79	Frank Cekuski,	Miner,	27	1	...	Slope No. 19,	Wanamie,	Killed by a fall of top coal immediately on starting to work that morning.
13,	80	Josiah Staple,	Sinker,	38	1	2	No. 5 air shaft,	South Wilkes-Barre,	When engaged withdrawing the tamping from a missed blast; the dynamite exploded killing him instantly. Other men in the shaft remonstrated against withdrawing the charge, but he being the charge-man paid no attention to that.
16,	81	David R. Davis,	Miner,	45	1	1	Woodward,	Plymouth township,	Davis and Babycos were instantly killed and were both working the face of the air-shaft when a big log fell on them.
16,	82	Joe Babycos,	Laborer,	25	...	...	Baltimore shaft No. 3,	Wilkes-Barre twp.,	They were both working three-sloped piece from roof.
22,	83	Joseph Seekiski,	do.	35	1	3	Nottingham,	Plymouth,	Killed by a fall of a thin flake of slate severely burned by an explosion of gas when brushing it out of a cross-cut;
36,	84	Arthur Snell,	Miner,	34	S.	...	Nottingham,	Plymouth,	died December 29th.
		Totals,	...	...	49	13			

TABLE NO. 4—*Recapitulation of Fatal Accidents.*

Occupation.	Number.	Nationality.	Number.	Cause of Accidents.	Number.
Miners, ...	36	American, ...	6	By explosions of CH gas, ...	22
Laborers, ...	18	Welsh, ...	20	By falls of roof and coal, ...	49
Head and footman, ...	2	Irish, ...	13	By falling down shafts, ...	9
Drivers and runners, ...	8	English, ...	11	By mine cars under ground, ...	12
Door-tenders, ...	1	Polish, ...	27	By explosions of powder and blasts, ...	4
Mine foremen and assistants, ...	2	German, ...	4	By miscellaneous causes under ground, ...	4
Company men, ...	3	Slav, ...	2	By miscellaneous causes on surface, ...	4
Shaft sinkers and rockmen, ...	10	Italian, ...	2		
Outside men, ...	3				
Non-employees, ...	1				
Total, ...	84		84		84

TABLE No. 5.—*List of Non-Fatal Accidents which Occurred In and About the Mines of the Fourth Anthracite Mine District, for the Year Ending December 31, 1893.*

Date of accident.	No. of accident.	Name of Person.	Occupation.	Age.	Married or single.	No. of children.	Name of Colliery.	Location—Luzerne County.	Nature and Cause of Accident.
Jan, 5,	1	William A. Powell, . .	Miner, ...	32	M.	4	No. 1 Red Ash, ...	Wilkes-Barre twp., . .	Hand and arm severely wounded by a fall of a piece of rock.
6,	2	John H. Thomas, . .	Machinist, ...	17	S.	...	Woodward breaker, . . .	Plymouth twp., . . .	Instep severely burned—a hot rivet flew into his boot.
7,	3	Jacob Pisock, ...	Loader, ...	21	S.	...	Stanton breaker, ...	Wilkes-Barre, . . .	Foot severely crushed between railroad cars.
11,	4	Edward Lynapp, . . .	Fireboss, ...	45	M.	7	Empire, ...	do.	Head and shoulder painfully hurt; stepped off the car when six feet from bottom of shaft.
12,	5	William Sarewage, . .	Laborer, ...	27	S.	...	Woodward, ...	Plymouth twp., . . .	Ankle dislocated; was pinned between a car and rib.
18,	6	Paul Cominsky, . . .	do.	42	M.	5	Lance No. 11, ...	Plymouth, ...	Neck and hands burned and bruised by igniting a small body of gas.
20,	7	Adam Rice, ...	Door tender, ...	15	S.	...	Franklin, ...	Wilkes-Barre, . . .	Heel severely crushed; caught under the wheel of the car.
23,	8	Joseph Bendunovick, .	Miner, ...	36	...	...	Nottingham, ...	Plymouth, ...	Arm fractured, struck by a piece of ice falling in the shaft.
25,	9	Daniel Gilroy, ...	Door tender, ...	15	S.	...	Gaylord, ...	do.	Leg fractured by a lump of coal rolling and jamming it against a car.
29,	10	Mike Yonoski, ...	Laborer, ...	23	S.	...	Shaft No. 1, ...	Edwardsdale, . . .	Painfully injured by fall of roof.
31,	11	Frank Grogoski, . . .	Miner, ...	25	S.	...	Slope No. 6, ...	Glen-Lyon, ...	Ankle dislocated and severe cuts on head; caused by a fall of coal.
31,	12	Morgan Morgans, . .	Driver, ...	19	S.	...	Empire, ...	Wilkes-Barre, . . .	Severely hurt about hips by being caught between a car and platform.
Feb 1,	13	Thomas Duffy, ...	Miner, ...	45	M.	5	Woodward, ...	Plymouth twp., . . .	Face and hands burned by an explosion of a small quantity of gas.
1,	14	Martin Krepetz, . . .	do.	48	M.	6	Stanton, ...	Wilkes-Barre, . . .	Throat knocked off and face injured by running into charge of dynamite and exploding it.
4,	15	Anthony Becker, . . .	Car coupler, ...	15	S.	...	Breaker No. 6, ...	Glen-Lyon, ...	Collar-bone fractured and ankle injured by falling under a car.

TABLE No 5. — Continued.

Date of accident.	No. of accident.	Name of Person.	Occupation.	Age.	Married or single.	No. of children.	Name of Colliery.	Location—Luzerne County.	Nature and Cause of Accident.
Feb	16	Samuel Fassett, . . .	Miner.	...	M.	4	Conyngham.	Wilkes-Barre, . . .	{ All more or less burned on face and hands by an explosion of gas. They discovered a reduction in the quantity of air at the faces of breasts and all went down and gathered together in the gangway between the two inner breasts. Gas accumulated in the inner breast which was up only a few yards, and when the air current started, it brought the gas directly upon their naked lights, and all were more or less burned.
	17	Edward Ward, . . .	Laborer.	...	M.	...			
	18	Thomas Keenan, . . .	Driver.	...	S.	...			
	19	John J. Morgan, . . .	Miner.	...	S.	...			
	20	Walter Davis, . . .	Miner.	...	S.	...			
	21	Patrick McEhan, . . .	Miner.	...	M.	...			
	22	Michael Ramsey, . . .	Laborer.	...	M.	...			
	23	Thomas Donlin, . . .	Miner.	...	M.	...			
	24	William Johnson, . . .	do.	...	M.	...			
	25	Thomas Christopher, . . .	do.	45	M.	4			
6,	26	Will am Kuduski, . . .	do.	27	S.	...	Warrior Run, ...	Wilkes-Barre, ...	Face and hands slightly burned by an explosion of gas.
8,	27	John Dubrick, ...	Laborer, ...	32	S.	...	Shaft No. 4, ...	Edwardsdale, ...	Face, hands and arms burned by an explosion of gas.
14,	28	Griffith Williams, . . .	Miner, ...	32	M.	2	Shaft No. 9, ...	Sugar Notch, ...	Face bruised and toe broken by a premature blast.
27,	29	James Mooney, ...	do.	61	M	...	Shaft No. 2, ...	Plym' uth, ...	Back severely injured and cut on side by falling coal from top of bottom leg of arm.
28,	30	Stanley Stazitzky, . . .	do.	27	M.	1	Shaft No. 6, ...	Glen Lyon, ...	Face and hands burned by an explosion of gas.
28,	31	Frank Howvack, ...	do.	34	S.	...	Shaft No. 1, Lee seam, . .	Nanticoke, ...	Leg and arm broken by a fall of top coal.
March	1,	August Kingater, . . .	Laborer, ...	55	M.	5	Baltimore shaft No. 2, . .	Wilkes-Barre twp., . .	Leg fractured by being caught under a car.
	2,	David A. Morgan, ...	Brakeman, ...	16	S.	...	Shaft No. 2, ...	Nanticoke, ...	Leg fractured by being struck by mine-locomotive.
	2,	Austin Gimley, ...	Loader, ...	18	S.	...	Lance No. 11 breaker, . .	Plymouth, ...	Arm broken; fell when stepping from one car to another.
	4,	Andrew Seppa, ...	Laborer, ...	30	S.	...	Slope No. 4, ...	Nanticoke, ...	Severely injured by falling under cars.
	11,	Walter Broad, ...	Miner, ...	30	M.	...	Shaft No. 4, ...	Edwardsdale, ...	Severely injured by coal falling on him from rib.
	14,	John Chisley, ...	do.	34	M.	1	Shaft No. 2, ...	Nanticoke, ...	Back, leg and arm severely injured by a premature blast.
	22,	Buckley Allabaugh, . . .	do.	46	...	...	Avondale, ...	Plymouth twp., ...	Painfully injured about back and hips by a fall of bony coal.

22,	39	Michael Poad, ...	do.	32	M.	6	Baltimore shaft No. 3, . .	Wilkes-Barre twp. .	Head and body painfully bruised by a fall of roof
24,	40	Benjamin F. Davies, .	Driver, ...	17	S.	...	Shaft No. 6, ...	Glen-Lyon, ...	Jaw broken by a kick from mule.
25,	41	Michael Chester, . . .	Laborer, ...	29	S.	...	Nottingham, ...	Plymouth, ...	Face and hands burned and arm hurt by an explosion of gas.
30,	42	Henry S. Morgan, . . .	Miner, ...	36	M.	...	Slope No. 4, ...	Nanticoke, ...	Thigh fractured by a fall of rock.
31,	43	Dennis Conley, ...	Rockman, ...	27	M.	...	Auchincloss, ...	Hanover twp.	Painfully bruised; fell twenty feet from a platform in the shaft.
31,	44	John R. Williams, . . .	Runner, ...	40	M.	1	Stanton, ...	Wilkes-Barre, . . .	Face and hands slightly burned by an explosion of gas.
1,	45	Ernest Boerner, ...	Carpenter, ...	52	M.	6	Breaker No. 5, ...	Nanticoke, ...	Injured painfully by falling under a car.
5,	46	John Lord, ...	Runner, ...	26	S.	...	Gaylord breaker, ...	Plymouth, ...	Painfully hurt by being caught between railroad cars.
5,	47	John Prishinski, . . .	'Door boy, ...	16	S.	...	Shaft No. 6, ...	Glen-Lyon, ...	Foot severely crushed by being jammed between cars.
8,	48	Albert Rodda, ...	Footman, ...	29	M.	1	Breaker No. 4, ...	Edwardsdale, . . .	Two fingers crushed off by being caught when tightening weigh-gear.
11,	49	John Langan, ...	Laborer, ...	28	M.	1	Boston, ...	Plymouth twp. . . .	Two ribs fractured and cut on head by a fall of roof.
11,	50	Mike Collabob, ...	Miner, ...	31	M.	3	Shaft No. 6, ...	Glen-Lyon, ...	Slide severely injured by a fall of coal.
12,	51	John Robbins, ...	Sinker, ...	33	S.	...	Auchincloss No. 2, . . .	Hanover township, .	Fell off the bucket a depth of 20 feet; was cut and bruised on elbow, head and knee.
12,	52	John Sigmon, ...	Dcor tender, ...	24	S.	...	Gaylord, ...	Plymouth, ...	Knee fractured; crushed between two empty cars.
14,	53	Philip Richards, . . .	Driver, ...	19	S.	...	Shaft No. 1, ...	Edwardsdale, . . .	Leg broken; mule fell on him crushing him against a car.
17,	54	Stephen Cann, ...	Miner, ...	36	M.	4	Conyngtham, ...	Wilkes-Barre, . . .	Hip, back and arm injured by a premature blast.
17,	55	Edward Rafter, ...	Pumpman, ...	35	M.	...	Dodson, ...	Plymouth, ...	Severely scalded by steam from a burst pipe.
19,	56	Thomas Evans, ...	Miner, ...	45	M.	6	Warrior Run, ...	Hanover township, .	Both legs broken and body bruised by a fall of rock.
20,	57	William Mills, ...	do.	33	M.	5	Slope No. 2, ...	Nanticoke, ...	Severely cut and bruised about face and body; when ready to fire a blast the gas feeders ignited and fired the blast while they were trying to extinguish them.
20,	58	Gustave Roundly, . . .	Laborer, ...	27	M.	2	Wanamie slope No. 18, .	Wanamie, ...	Leg broken and hurt about chest by a fall of top slate.
20,	59	Lawrence Stofski, . . .	do.	35	M.	2	Hollenback, ...	Wilkes-Barre, . . .	Collar bone broken and knee painfully hurt; squeezed between cars.
24,	60	John Dane, ...	Driver, ...	19	S.	...	Shaft No. 9, ...	Sugar Notch, ...	Bruised about head and face by a premature blast.
25,	61	James Corrigan, ...	Miner, ...	28	M.	3	Breaker No. 5, ...	South Wilkes-Barre	Leg broken; overturned some screen jackets upon himself.
28,	62	Hugh Williams, ...	Slate picker, ...	14	S.	...	Stanton, ...	Wilkes-Barre, . . .	Head and chest painfully bruised by being caught between cage and shaft.
0,	63	Michael Murphy, ...	Timberman, ...	35	S.	...	Stanton breaker, ...	do.	Severely injured by being crushed between cars.
May	2,	Frank Sunday, ...	Slate picker, ...	18	S.	...	Avondale, ...	Plymouth township, .	Severely hurt about back and hips by being caught under cars.
3,	65	Joseph Poshinski, . . .	Laborer, ...	22	S.	...	Dorrance, ...	Wilkes-Barre, . . .	Ankle fractured by a piece of coal falling upon his leg.
4,	66	Peter Rudceski, ...	do.	30	S.	...	Shaft No. 2, ...	Nanticoke, ...	Severely cut on face by a kick from mule.
8,	67	Joseph Shipkofski, . . .	Driver, ...	17	S.	...			

TABLE NO. 5—Continued.

Date of accident.	No. of accident.	Name of Person.	Occupation.	Age.	Married or single.	No. of children.	Name of Colliery.	Location—Luzerne County.	Nature and Cause of Accident.
May	68	Bolis Tolofski, . . .	Door tender, . . .	15	S.	...	Shaft No. 1, ...	Nanticoke, ...	Arm and leg severely lacerated by falling under cars.
8.	69	John Galitski, ...	Runner, ...	21	S.	...	Woodward, ...	Plymouth township.	Arm fractured in two places; while trying to sprag the car from the bumper he fell under.
8.	70	John Maley, ...	Driver, ...	19	S.	...	Lance No. 11, ...	Plymouth, ...	Severely cut on thigh and bruised on ankle; car ran back in breast upon him.
8.	71	Felix Kieran, ...	do.	17	S.	...	Hollenback, ...	Wilkes-Barre, ...	Severely squeezed about hips between empty and loaded cars at passing branch.
9.	72	Joseph Connolly, . . .	Laborer, ...	28	S.	...	Shaft No. 9, ...	Sugar Notch, ...	Side and back painfully injured by a fall of fire-clay.
9.	73	Illyd Evans, ...	do.	27	M.	1	Slope No. 4, ...	Nanticoke, ...	Knee cap fractured by being struck by coal flying from a blast.
10.	74	Barney McEnney, . . .	Miner, ...	30	S.	...	Hillman Vein, ...	Wilkes-Barre, ...	Hands and face painfully burned by an explosion of gas.
10.	75	Alexander Burke, . . .	Runner, ...	20	S.	...	Shaft No. 6, ...	Glen-Lyon, ...	Wrist broken by being caught while working on face and hands; leg fractured on face and hands; ignited a small quantity of gas when working loose coal out after blasting.
11.	76	Mike Pleshia, ...	Miner, ...	28	M.	3	{ Alden, ...	Newport township, . . .	Back severely bruised; some ribs fell on him when unloading them from cars.
11.	77	William Valanta, . . .	Laborer, ...	27	S.	...		Plymouth township, . . .	Collar bone broken and cut about face and neck by a premature blast.
3.	78	Wm. J. Evans, ...	Ass't foreman, ...	35	M.	1	Woodward breaker, . . .	Plymouth, ...	Struck by brake-lever of railroad car; hurt about kidney.
16.	79	Michael Tool, ...	Miner, ...	52	M.	...	Conyngnam, ...	Wilkes-Barre, ...	Arm broken and finger crushed; shot fired when he was approaching, thinking it missed.
18.	80	Daniel Edwards, ...	Loader, ...	23	M.	...	Nottingham breaker, . . .	Plymouth, ...	Fingers badly crushed; a piece of coal fell and crushed them on the drill.
18.	81	James Ashford, ...	Miner, ...	...	M.	...	Conyngnam, ...	Wilkes-Barre, ...	Collar bone broken by being struck by a piece of timber when trying to extinguish a fire in breaker.
19.	82	Jacob Gustrofski, . . .	do.	28	S.	...	Slope No. 6, ...	Glen-Lyon, ...	
0.	83	William Kennedy, . . .	Laborer, ...	20	S.	...	Empire breaker, ...	Wilkes-Barre, ...	

23,	84	Henry Hoffmann, . .	Miner, ...	32	M.	2	No. 3.	West Nanticoke, . .	Leg broken and body severely bruised; when prying coal down it fell on him.
25,	85	Adam Vashofski, . .	do.	28	M.	3	Shaft No. 1, Lee seam. .	Nanticoke, ...	Face and hands severely burned by an explosion of gas.
26,	86	James Stephens, . . .	Sinker, ...	30	M.	...	Maxwell No. 20, ...	Ashley, ...	Leg broken by a piece of slate falling from side of shaft.
27,	87	Mathew Hiscox, . . .	Miner, ...	30	M.	6	Slope No. 4.	Nanticoke, ...	Foot broken; while mining, a piece of coal fell on it.
30,	88	Evan T. Thomas, . . .	do.	35	M.	2	Parrish, ...	Plymouth, ...	Severe contusion on back; he failed to reach a safe place from a blast.
June 1,	89	Cornelius Mack, . . .	Pumpman, ...	53	M.	9	Hollenback, ...	Wilkes-Barre, ...	Back and leg sprained; cake caught in shaft, causing him to fall on the coal.
2,	90	Edward Loftus, . . .	Miner, ...	32	M.	4	Baltimore tunnel, ...	do.	Painfully injured by being squeezed between cars and rib.
2,	91	John McCarthy, . . .	do.	23	S.	...	Avondale, ...	Plymouth township, .	Leg fractured in two places and back hurt by a fall of top rock.
5,	92	Fred. Klamervuz, . . .	do.	45	M.	2	Tunnel No. 6, ...	Glen-Lyon, ...	Leg broken by a fall of coal; he pulled the coal down upon himself.
5,	93	George Kosobosky, . .	Laborer, ...	33	M.	...	Empire, ...	Wilkes-Barre, ...	Some ribs fractured by a collar (timber) falling on him.
7,	94	John Bramick, ...	do.	40	M.	3	Shaft No. 1, ...	Edwardsdale, ...	Leg broken by a fall of rock.
7,	95	William McGroarty, . .	Miner, ...	52	S.	...	Baltimore tunnel, ...	Wilkes-Barre, ...	Face and arms burned by an explosion of powder.
7,	96	Michael McLaughlin, .	do.	42	M.	7	Conyngham, ...	do.	Face cut and bruised by a premature blast.
10,	97	William Miner, ...	Pumpman, ...	24	S.	...	Parrish, ...	Plymouth, ...	Small bone in leg fractured and bruised on body by being struck by a passing water tank on slope.
12,	98	Thomas Riel, ...	Driver, ...	17	S.	...	Avondale, ...	do.	Both legs fractured and body bruised; injured by cars.
12,	99	John Webb, ...	Miner, ...	36	M.	2	Boston, ...	Plymouth township, .	Leg broken near ankle by a fall of rock from roof.
13,	100	Calvin Hutton, ...	Driver, ...	19	S.	...	Breaker No. 3, ...	West Nanticoke, . . .	Toes crushed by a car running over them.
14,	101	William W. Jones, . . .	Rockman, ...	27	M.	1	Maxwell slope, ...	Ashley, ...	Injured about hips and side by being struck by a runaway car.
15,	102	James Wiess, ...	Brakeman, ...	19	S.	...	Breaker No. 5, ...	Nanticoke, ...	Severely bruised by falling from a trestle
19,	103	George Beleski, ...	Miner, ...	26	S.	...	Slope No. 6, ...	Glen Lyon, ...	Face and hands slightly burned by an explosion of gas.
19,	104	Joseph Davies, ...	Driver, ...	17	S.	...	Shaft No. 6, ...	do.	Nose broken and cut above eye by a kick from mule.
20,	105	John L. Griffiths, Jr., .	do.	15	S.	...	Shaft No. 2, ...	Nanticoke, ...	Arm broken by a kick from mule.
20,	106	George Anson, ...	Laborer, ...	32	S.	...	Shaft No. 3, ...	Plymouth, ...	Leg cut off by a fall of rock.
21,	107	Jacob Brozea, ...	Miner, ...	33	M.	3	Shaft No. 6, ...	Glen Lyon, ...	Face and hands burned by an explosion of gas.
22,	108	John H. Gwyn, ...	Driver, ...	19	S.	...	Shaft No. 1, Forge seam, .	Nanticoke, ...	Painfully burned and bruised by an explosion of gas.
25,	109	Arthur Belles, ...	Door tender, ...	15	S.	...	Alden, ...	Newport township, . .	Leg fractured, car jumped track and knocked him down on him.
29,	110	Patrick Gallagher, . .	do.	15	S.	...	Colliery No. 5, ...	South Wilkes-Barre, .	Thumbs crushed by the block slipping and causing his fingers to be caught under the wheel.
30	111	H. B. Kirehoff, ...	Sinker, ...	40	M.	5	Auchincloss No. 1, ...	Hanover township, . .	Wrist crushed by a rock falling from the bucket in the shaft.

TABLE No. 5—Continued.

Date of accident.	No. of accident.	Name of Person.	Occupation.	Age.	Married.	No. of children.	Name of Colliery.	Location—Laverne County.	Nature and Cause of Accident.
July 1,	112	George Savatchon, . .	Laborer, ...	35	S.	...	Shaft No. 4, ...	Edwardsdale, . . .	Painfully bruised on head and legs by a fall of fire-clay.
5,	113	Peter Butkavitch, . .	Miner, ...	39	M.	3	Shaft No. 1, Lee seam, ...	Nanticoke, ...	Face and hands burned by an explosion of gas.
8,	114	Owen Jones, ...	do.	49	M.	9	Avondale, ...	Plymouth township, ...	Severely burned on face and arms by an explosion of gas.
10,	115	John Collins, ...	Slate picker, ...	15	S.	...	Jersey No. 8 breaker, ...	Ashley, ...	Arm crushed by falling on a revolving shaft, necessitating amputation.
19,	116	John Yashoriak, . . .	Laborer, ...	34	M.	2	Shaft No. 1, Lee seam, ...	Nanticoke, ...	Legs and side bruised by a fall of rock.
11,	117	Anthony Fisher, . . .	Miner, ...	32	M.	...	Conyngnam, ...	Wilkes-Barre, ...	One finger cut off by being caught between pulley and chain.
11,	118	Laurence Kimer, . . .	do.	30	M.	1	Hollenback, ...	do.	Face and hands seriously burned by inadvertently igniting a gas-blower.
13,	119	David Ashton, ...	do.	35	M.	4	Parrish, ...	Plymouth, ...	Face and hands slightly burned by an explosion of gas.
13,	120	John Pyle, ...	do.	30	M.	3	Shaft No. 1, ...	Edwardsdale, ...	Injured on chest; a prop fell on him.
13,	121	Thomas Warner, . . .	do.	28	M.	...	Slope No. 4, ...	Nanticoke, ...	Eye dangerously injured; struck by a piece of coal flying from a pick.
17,	122	Henry Williams, . . .	do.	38	M.	...	Hollenback, ...	Wilkes-Barre, ...	Two fingers cut off by being caught between rope and pulley at the air shaft.
18,	123	Joseph Cheyranse, . .	Laborer, ...	18	S.	...	Franklin, ...	do.	Severely injured by falling under cars on the rock slope.
21,	124	Joe De'acti, ...	do.	27	S.	...	Shaft No. 1, ...	Edwardsdale, ...	Leg broken; car crushed him against face of slope.
22,	125	Edward Sherrington, .	Miner, ...	38	M.	...	Colliery No. 5, ...	South Wilkes-Barre, ...	Severely burned on their face and hands. When charging a hole in the rock they inadvertently fired the powder.
22,	126	Julius Bosock, ...	Laborer, ...	45	M.	...	Hollenback, ...	Wilkes-Barre, ...	Bruised and lost quite severely by a powder blast.
26,	127	John McDonnell, . . .	Miner, ...	49	M.	...	Baltimore shaft No. 2, ...	Wilkes-Barre twp., ...	Angle broken. When unloading timber his leg was caught between a piece of timber and rib.
27,	128	Thomas Davidson, . .	do.	25	M.	...	Shaft No. 1, Lee seam, ...	Nanticoke, ...	Head and breast severely injured by being caught between cars and rib.
31,	129	Frank Smith, ...	Footman, ...	16	S.	...	Shaft No. 1, Lee seam, ...	Nanticoke, ...	

Aug.	1.	130	Daniel R. Davies.	Foreman.	45	M.	..	..	..	All more or less severely injured by an explosion of gas which took place during a squeeze in the mine. The men were busy hammering gas and were at a gas-specified point and ignited from their naked lamps.
	1.	131	Morgan Jenkins.	Fi-cross.	46	M.	..	..	..	
	1.	132	Arthur Price.	Timberman.	38	M.	..	..	..	
	1.	133	William T. Jones.	Co. laborer.	26	M.	..	Dodson.	Plymouth.	
	1.	134	William Atkinson.	do.	30	S.	..	..	..	
	1.	135	Steve Cusma.	Timberman.	27	M.	..	..	..	
	4.	136	Steve Bretina.	Laborer.	28	M.	..	Shaft No. 3.	Edwardsdale.	Knee dislocated by a fall of rock.
	4.	137	Engene Cooper.	Oiler.	15	S.	..	Breaker No. 5.	Nanticoke.	Back injured and chin bruised by falling under a car.
	8.	138	John Monahan.	Laborer.	19	S.	..	Jersey No. 8.	Ashley.	Ankle broken by being struck by coal-falling from the rib.
	9.	139	Michael Murray.	Driver.	16	S.	..	Stanton breaker.	Wilkes-Barre.	Arm broken; mule fell on him
	15.	140	William A. Chaik.	Carpenter.	50	M.	2	Shaft No. 1, outside.	Nanticoke.	Leg crushed between cars at head of shaft.
	17.	141	Daniel D. Williams.	Miner.	38	M.	..	Shaft No. 3.	South Wilkes-Barre.	Face and hands burned by an explosion of gas.
	23.	142	Christian Marth.	do.	48	M.	8	Lee.	Newport township.	Ankle dislocated and back bruised by a fall of rock.
	24.	143	Robert Gates.	Laborer.	50	M.	1	Shaft No. 9.	Sugar Notch.	Arm broken; caught between cars.
	25.	144	Jacob Gigest.	Miner.	27	S.	..	Baltimore shaft No. 2.	Wilkes-Barre.	Face and hands burned; powder charge exploded when about to charge a hole.
	30.	145	Mike Bookovitch.	Laborer.	18	S.	..	Colliery No. 5.	South Wilkes-Barre.	Hand crushed; wheel of car passed over it when he was pulling block.
	31.	146	John Zaberowski.	do.	36	M.	3	Slope No. 4.	Nanticoke.	Leg fractured by a piece of coal falling from the rib.
	31.	147	Peter Sudu.	Miner.	33	S.	..	Warrior Run.	Hanover township.	Painfully hurt by a premature blast.
Sept.	5.	148	John Majovceack.	Laborer.	39	M.	1	Slope No. 4.	Nanticoke.	Leg severely injured by a fall of slate jamming him between car and rib.
	9.	149	Humphrey Crooks.	do.	55	M.	4	New shaft No. 5.	Plymouth.	Struck on head by a plank and severely injured.
	9.	150	Charles Lampaney.	Sinker.	24	S.	..	Anchincloss No. 2.	Hanover township.	Arm broken by being struck by a falling piece of rock in shaft sinking.
	12.	151	Edward Pusbman.	Footman.	23	S.	..	Shaft No. 2.	Nanticoke.	Leg fractured by being struck by a descending cage at bottom of shaft.
	12.	152	Anthony Surofski.	Sinker.	35	M.	..	Anchincloss No. 2.	Hanover township.	Struck on hip by a piece of rock falling from side of shaft.
	13.	153	John O'Donnell.	Door tender.	15	S.	..	Stanton.	Wilkes-Barre.	Badly injured by falling under cars.
	13.	154	John Hayward.	Miner.	50	M.	6	Shaft No. 5.	Plymouth.	Leg fractured and a scalp wound.
	15.	155	Andrew Colson.	Door tender.	63	S.	..	Parrish.	do.	Shoulder and arm fractured by being struck by cars when he was opening a door.
	19.	156	Daniel Sullivan.	Driver.	16	S.	..	Breaker No. 5.	South Wilkes-Barre.	Three fingers crushed between cars.
	21.	157	Thomas Williams.	Miner.	37	M.	6	Lance No. 11.	Plymouth.	Both severely injured by an explosion
	21.	158	Owen L. Evans.	Blacksmith.	35	M.	..	Shaft No. 9.	Sugar Notch.	Arm broken by a fall of roof.
	22.	159	Anthony Rublis.	Miner.	35	M.	..	Shaft No. 1.	Edwardsdale.	Back injured by a fall of fire-clay.
	26.	160	Michael Noshkey.	Laborer.	41	M.	3	Shaft No. 5.	Glen Lyon.	Small bone of ankle broken by a fall of rock.
	29.	161	Mike Hudock.	do.	28	S.	..	Colliery No. 5.	South Wilkes-Barre.	Bruiet and cut by being thrown over by steam brake lever.
	30.	162	Henry Keifer.	Engineer.	52	M.	4	Empire.	Wilkes-Barre.	Teeth knocked out by a kick from mule.
Oct.	2.		William Daniels.	Driver.	15	S.	..			

TABLE NO. 5—Continued.

Date of accident.	No. of accident.	Name of Person.	Occupation.	Age.	Married.	No. of children.	Name of Colliery.	Location—Inze ne County.	Nature and Cause of Accident.
Oct. 3.	163	John Lehman, ...	Laborer, ...		S.	. . .	Reynolds No. 16, ...	Plymouth, ...	Arm broken and body bruised by being caught between car and roof.
4.	164	Frank Vohart, ...	do.	35	S.	. . .	Breaker No. 5, ...	Nanticoke, ...	Fell from a platform when painting roof of breaker and was severely hurt.
4.	165	David Rees, ...	Runner, ...	19	S.	. . .	Woodward, ...	Plymouth township, ...	Squeezed about hips and foot injured by being caught between cars.
4.	166	Henry Daniels, ...	Miner, ...	36	S.	. . .	Dodson, ...	Plymouth, ...	Simple fracture of leg by a fall of coal.
5.	167	Augustus Pullman, . . .	Laborer, ...	40	M.	5	Slope No. 18, ...	Wanamie, ...	Thigh fractured by a fall of top coal.
5.	168	John Roberts, ...	Miner, ...	30	S.	. . .	Red Ash No. 1, ...	Wilkes-Barre twp., ...	Slightly burned on face and hands by an explosion of gas in an old breast.
6.	169	Patrick Quinn, ...	do.	50	M.	. . .	Woodward, ...	Plymouth township, ...	Leg fractured by a premature blast.
9.	170	John Benoit, ...	Laborer, ...	25	S.	. . .	Nottingham, ...	Plymouth, ...	Ankle badly bruised by a fall of bony coal.
7.	171	Mark McLaughlin, . . .	Loader, ...	21	S.	. . .	Breaker No. 5, ...	South Wilkes-Barre, ...	Thighs crushed off between cars.
8.	172	Dominick Skinner, . . .	Miner, ...	28	M.	1	Shaft No. 2, ...	Nanticoke, ...	Bruised in face and body by a premature blast.
12.	173	Charles Syston, ...	Laborer, ...	25	S.	. . .	Dorrance, ...	Wilkes-Barre, ...	Leg fractured and cut on arm and head by a fall of rider coal.
18.	174	Mike Luther, ...	Dump man, ...	23	S.	. . .	Breaker No. 2, ...	Edwardsdale, ...	Hand badly crushed by a car running upon it when pulling a block out.
19.	175	James Boyle, ...	Miner, ...	. . .	M.	6	Conyngnam, ...	Wilkes-Barre, ...	Leg severely bruised by a fall of top coal.
20.	176	Hugh W. Thomas, . . .	Rock man, ...	35	M.	3	Buttwood, ...	Hanover township, ...	Wrist fractured by falling from platform in shaft.
20.	177	John Corine, ...	Miner, ...	. . .	M.	. . .	Colliery No. 5, ...	South Wilkes-Barre, ...	Cut on head by a piece of coal falling on him.
21.	178	Gustavius Bumbel, . . .	Carpenter, ...	29	S.	. . .	Buckwheat separator, ...	Nanticoke, ...	Fell a distance of twenty-five feet and was severely injured.
23.	179	William Rusty, ...	Laborer, ...	22	S.	. . .	West End breaker, ...	Mocanaqua, ...	Compound fracture of leg; while trying to couple moving cars he fell under.
23.	180	Barney McDermott, . . .	Miner, ...	43	M.	6	Nottingham, ...	Plymouth, ...	Leg broken by a fall of coal; he was pulling the coal down.
23.	181	James Penderghast, . . .	Slate picker, ...	16	S.	. . .	Breaker No. 7, ...	Nanticoke, ...	Leg broken; slipped when climbing and fell on the scrapers.

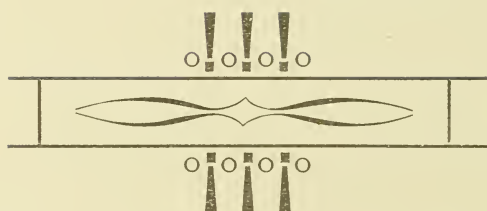
25,	182	William A. Jones, . .	Miner, ...	32	M.	1	{	Nottingham, ...	Plymouth, ...	All burned more or less on face and hands by an explosion of gas when about to put up brattice at face of the No. 8 east gangway in the red ash seam.
25,	183	Tally T. Jones, . . .	Carpenter, ...	23	S.	2				Scaffold broke causing him to fall a distance of nine feet; head and shoulders severely hurt
25,	184	Morgan Evans, . . .	do.	19	S.	3		Bliss, ...	Hanover township	The three were severely injured by being blown and by material blown against them by an explosion of powder and dynamite.
27,	185	Daniel Cook, ...	Mason, ...	48	M.	4				Shoulder and bruised on back by fall of timber.
30,	186	Sheridan Hilton, . .	Miner, ...	35	M.	5	{	Stanton, ...	Wilkes-Barre, . . .	Cut and bruised on head and back by a fall of slate.
30,	187	Patrick McCue, . . .	do.	54	M.	6				Cut on arm and breast by a fall of top bony coal.
30,	188	Michael Burke, . . .	Laborer, ...	35	M.	7				Leg broken by a fall of rock.
30,	189	William Watt, ...	Miner, ...	47	M.	8		Baltimore tunnel, ...	do.	Slight fracture of skull and face bruised by a fall of rock.
31,	190	Wilson Hogan, ...	Laborer, ...	19	S.	9		Slope No. 18, ...	Wanamie, ...	Arm broken by falling when scuffling with another boy.
Nov. 1,	191	Andrew Hidoek, . . .	do.	24	S.	10		do.	do.	Leg fractured in two places by a fall of roof.
6,	192	William Vanfossen, . .	Miner, ...	40	M.	11		Shaft No. 6, ...	Glen Lyon, ...	Both painfully injured by a fall of rock from roof; they were sitting chatting together at the tool box when the fall came.
7,	193	Christian Peterson, . .	do.	40	M.	12		Alden, ...	Newport township, . .	Leg broken by a mule falling on him.
9,	194	Samuel Golovski, . . .	Car coupler, ...	15	S.	13		Slope No. 6, ...	Glen Lyon, ...	Leg severely lacerated by falling under cars.
9,	195	Patrick Brislin, . . .	Miner, ...	35	M.	14		Warrior Run, ...	Hanover township, . .	Knee severely injured by mule; injured severely.
9,	196	Thomas Kearns, ...	do.	60	M.	15	{	Shaft No. 1, Lee seam. . . .	Nanticoke, ...	Both legs broken and back injured by fall of rock.
9,	197	John Plant, ...	do.	50	M.	16				Entered the breast before the miners in the morning and fired a body of gas; was severely burned.
10,	198	John Badanna, ...	Door tender, ...	17	S.	17		Shaft No. 3, ...	Plymouth, ...	Thigh fractured in two places by a fall of bony roof.
13,	199	Thomas Hughes, ...	Door tender, ...	15	S.	18		Woodward, ...	Plymouth township, .	Severely cut on leg; was caught by the stretcher when mule was running past him.
13,	200	Edward Mullnsky, . . .	Driver, ...	19	S.	19		do.	do.	Leg broken by being struck by haulage rope.
14,	201	George Kaungh, ...	Laborer, ...	33	M.	20		Slope No. 4, ...	Nanticoke, ...	Face and hands burned by an explosion of gas at face of breast.
14,	202	George Braham, ...	do.	33	M.	21		Nottingham, ...	Plymouth, ...	The first was slightly hurt and Studna had his thigh fractured; when loading a car together a flake of bony coal fell on them.
16,	203	George McDonald, . . .	Miner, ...	35	M.	22		Maffet, ...	Sugar Notch, ...	The three were painfully injured by falling while it was being rammed into the hole, the cartridge having been too tight.
17,	204	Brindley Richards, . .	Door tender, ...	14	S.	23		Shaft No. 2, ...	Nanticoke, ...	
18,	205	David Jones, ...	Co-Laborer, ...	30	S.	24		Shaft No. 1, ...	Edwardsdale, ...	
20,	206	Lawrence Rowalofski, .	Laborer, ...	59	M.	25		Shaft No. 6, ...	Glen Lyon, ...	
22,	207	Stephen Evans, ...	Miner, ...	32	M.	26	{	Shaft No. 2, ...	Edwardsdale, ...	
22,	208	John Studna, ...	Laborer, ...	42	M.	27				
4,	209	Frank Magutski, ...	Miner, ...	28	M.	28	{	Boston, ...	Plymouth township, .	
4,	210	John Fermanaki, ...	do.	32	M.	29				
4,	211	Samuel Uncaclosky, . .	Laborer, ...	24	S.	30				

TABLE NO. 5—Continued.

Date of accident.	No. of accident.	Name of Person.	Occupation.	Age.	Married.	Number of children.	Name of Colliery.	Location—Luzerne County.	Nature and Cause of Accident.
Nov. 27.	213	Frank Smith, ...	Engineer, ...	30	M.	1	Breaker No. 4, ...	Edwardsdale, . . .	Hand crushed by being caught by connecting rod of engine when he was carelessly wiping the bed-plate.
27.	214	John Zipfah, ...	Miner, ...	38	M.	...	Shaft No. 2, ...	do. do.	Painfully hurt by a fall of top coal.
28.	215	Robert Jones, ...	do.	28	S.	...	Shaft No. 1, ...	do. do.	Face and hands of each burned by explosion of a small quantity of gas.
28.	216	Andrew Wohler, ...	Co-Laborer, ...	27	S.	...	Lance No. U, ...	Plymouth, ...	Both legs fractured and body injured; cage descended on him at bottom shaft.
28.	217	Frank Roberts, ...	do.	28	M.	...	Stanton, ...	Wilkes-Barre, . . .	Both legs fractured; a collar fell on him while helping to put up a pair of timbers.
29.	218	Patrick McElwee, ...	do.	52	M.	4	Bliss, ...	Hanover township,	Severe scalp wound and bruised on arms by falling from a platform in the shaft, a distance of twelve feet.
Dec. 4.	219	John Evans, ...	Sinker, ...	45	M.	...	Red Ash No. 1, ...	Wilkes-Barre twp.,	Painfully hurt by being squeezed between cars.
6.	220	Michael Golenski, ...	Laborer, ...	28	S.	...	Empire, ...	Wilkes-Barre, . . .	Leg broken by a fall of slate from beneath the top coal in Ross seam.
6.	221	Peter Mesceki, ...	do.	32	M.	...	Shaft No. 4, ...	Edwardsdale, . . .	Face and hands of each slightly burned by an explosion of gas; the gas was brought down upon their lamps by a fall of roof.
7.	222	Paul Yankle, ...	do.	30	S.	...	Empire, ...	Wilkes-Barre, . . .	Badly cut and bruised by a blast; the match was cut too short for him to get away.
9.	223	William T. Griffiths, ...	Miner, ...	39	M.	1	Slope No. 4, ...	Nanticoke, ...	Arm broken by being caught between car and roof.
9.	224	David Pritchard, ...	Laborer, ...	33	M.	...	Alden, ...	Newport township, .	Leg broken by coal falling from side of gangway.
11.	225	David H. Williams, ...	Miner, ...	48	S.	...	Stanton, ...	Wilkes-Barre, . . .	Leg fractured by a fall of slate released by the shock of a blast.
13.	226	John Henry Gwynn, ...	Driver, ...	19	S.	2	Dorrance, ...	do. do.	Back and hip slightly injured by a fall of fire clay.
13.	227	William Netherton, ...	Timberman, ...	50	M.	5	Hollenback, ...	do. do.	Hip dislocated and cut on face and head by a fall of coal.
19.	228	David B. Evans, ...	Miner, ...	54	M.	7	West End, ...	Mocanqua, ...	Twist fractured; when prying down a piece of bony coal it struck him on the leg.
20.	229	Michael Lenahan, ...	do.	34	M.	...	Hollenback, ...	Wilkes-Barre, . . .	
21.	230	John J. Kitchen, ...	do.	40	M.	...			
23.	231	Andrew Menachefsky, ...	Laborer, ...	20	S.	...			
30.	232	John Barrett, ...	Miner, ...	59	M.	7			

Recapitulation of Non-Fatal Accidents.

Occupation.	Number.	Nationality.	Number.	Causes of Accidents.	Number.
Miners.	89	American.	36	By explosion of CH ₄ gas.	46
Laborers, ...	54	Welsh, ...	42	By falls of roof and coal.	65
Head and footmen, ...	3	Irish, ...	41	By falling down shafts.	4
Drivers and runners, ...	23	English, ...	13	By mine cars under ground.	36
Miners' boys, ...	1	Polish, ...	10	By explosions of powder and blasts.	27
Mine tenders, ...	3	Slav, ...	16	By miscellaneous causes under ground.	28
Company men, ...	11	German, ...	3	By miscellaneous causes on surface.	26
Shaft stakers and rockmen, ...	10	Scotch, ...	2		
Outside men, ...	28	Swede, ...	1		
		Danish, ...	1		
Total, ...	232	Total, ...	232	Total, ...	232



FIFTH ANTHRACITE DISTRICT.

(LUZERNE AND CARBON COUNTIES.)

Hazleton, Pa.

Hon Thomas J. Stewart, Secretary of Internal Affairs:

Sir: I have the honor of herewith submitting my annual report as Inspector of coal mines for the Fifth Anthracite district for the year ending December 31, 1893.

The report will show that this year the production of coal reached 6,239,068.10 tons, being an increase over 1892 of 396,343.11 tons.

The number of lives lost in and about the mines was 58, being an increase of 10 over the fatalities of last year, leaving 29 wives widows, and 68 orphans, in this and other lands to mourn for husband and father.

The number of non-fatal accidents was 99, being a decrease of 11 from the list of similar accidents for 1892.

Embodied in table No. 4 will be found the two fatalities of Jeddo Tunnel, by which two widows and four orphans are left in Hungary. The tables show that a life was lost in the mining or preparation of each 107,570 tons of coal; that for each non-fatality reported, there was produced 63,021 tons of coal and for each accident, fatal or non-fatal, 39,737 tons of coal were produced. They also show a fatal accident for each 302.5 persons employed, a non-fatal injury to one person for 177.2 employed, and an accident, fatal or non-fatal, to one person in each 111.7 persons employed.

A brief description of some of the improvements at the collieries is given.

Yours very respectfully,

JOHN M. LEWIS.

TONNAGE OF ALL COMPANIES FOR THE YEAR 1893.

A Pardee & Company, ...	519,249.07
Coxe Brothers & Co., ...	1,258,327.10
Lehigh Coal and Navigation Company,.....	830,242.15
G. B. Markle & Co.,.....	471,746.14
Linderman & Skeer, ...	488,616.19
Upper Lehigh Coal Company,.....	350,460.03
J. C. Haydon & Co., ...	284,362.04
Pardee Brothers & Co.,.....	354,922.05
Pardee Sons & Co.,.....	226,613.17
Calvin Pardee & Co., ...	134,887.15
A. S. Van Wickle, ...	398,573.09
Wm. T. Carter & Co., ...	86,976.00
C. M. Dodson & Co., ...	214,328.00
M. S. Kemmerer & Co., ...	215,307.17
Lehigh and Wilkes-Barre Coal Company,.....	129,492.02
Lehigh Valley Coal Company,.....	128,668.03
John S. Wentz & Co., ...	92,930.16
The Evans Mining Company, ...	53,362.14

Total tonnage, ... 6,239,068.10

Number of Fatalities and Tons of Coal Mined per Life Lost.

Names of Operators.	Number of lives lost.	Tons of coal produced per life lost.
A. Pardee & Co., ...	9	57,994
Coxe Brothers & Co.,.....	8	157,291
Lehigh Coal and Navigation Company, ...	8	103,780
G. B. Markle and Co., ...	5	94,349
Linderman & Skeer, ...	5	97,723
Upper Lehigh Coal Company,.....		
J. C. Haydon & Co., ...	1	284,362
Pardee Brothers & Co., ...	7	50,703
Pardee Sons & Co., ...	1	226,613
Calvin Pardee & Co., ...	2	67,444
A. S. Van Wickle, ...	7	56,939
Wm. T. Carter & Co., ...		
C. M. Dodson & Co., ...	1	214,328
M. S. Kemmerer & Co.,.....	1	215,307
Lehigh & Wilkes-Barre Coal Company,.....		
Lehigh Valley Coal Company, ...	1	128,668
John S. Wentz & Co., ...	2	46,465
The Evans Mining Company		
Totals for all companies, ...	58	107,570

Number of Non-Fatal Accidents and Tons of Coal Produced per Person Injured.

Names of Operators.	Number of persons injured.	Number of tons of coal produced per person injured.
A. Pardee & Co., ...	5	103,850
Coxe Brothers & Co., ...	8	157,291
Lehigh Coal and Navigation Co., ...	2	415,121
G. B. Markle & Co., ...	15	31,450
Linderman & Co., ...	13	37,586
Upper Lehigh Coal Company, ...	4	87,615
J. C. Haydon & Co., ...	7	40,623
Pardee Brothers & Co., ...	10	35,492
Pardee Sons & Co., ...	7	32,373
Calvin Pardee & Co., ...	1	134,888
A. S. Van Wickle, ...	12	33,214
Wm. T. Carter & Co., ...	1	86,976
C. M. Dodson & Co., ...	3	71,443
M. S. Kemmerer & Co., ...	4	58,827
Lehigh & Wilkes-Barre Coal Company, ...	3	43,164
Lehigh Valley Coal Company, ...	1	128,668
John S. Wentz & Co., ...	3	30,977
The Evans Mining Company, ...	None.	.....
Total non-fatalities and averages for all, ...	99	63,021

Number of Fatal and Non-Fatal accidents and Tons of Coal Produced per Person Killed or Injured.

Name of the Operators.	Number of persons killed or injured.	Tons of coal produced per person killed or injured.
A. Pardee & Co., ...	14	37,089
Coxe Brothers & Co., ...	16	78,644
Lehigh Coal and Navigation Company, ...	10	83,024
G. B. Markle & Co., ...	20	23,587
Linderman & Skeer, ...	18	27,145
Upper Lehigh Coal Company, ...	4	87,615
J. C. Haydon & Co., ...	8	35,545
Pardee Brothers & Co., ...	17	20,878
Pardee Sons & Co., ...	8	28,327
Calvin Pardee & Co., ...	3	44,963
A. S. Van Wickle, ...	19	20,977
Wm. T. Carter & Co., ...	1	86,976
C. M. Dodson & Co., ...	4	53,582
M. S. Kemmerer & Co., ...	5	43,061

*Number of Fatal and Non-Fatal accidents and Tons of Coal Produced
Per Person Killed or Injured—Continued.*

Names of the Operators.	Number of persons killed or injured.	Tons of coal pro- duced per per- son killed or in- jured.
Lehigh & Wilkes-Barre Coal Company, ...	3	43,164
Lehigh Valley Coal Company, ...	2	61,334
John S. Wentz & Co., ...	5	18,586
The Evans Mining Company, ...	None.	
Total fatalities and non-fatalities and average for all, ...	157	39,737

Classification of Fatal and Non-Fatal Accidents.

Causes of Accidents.	Number killed.	Number injured.	Totals.
By water from old workings, ...	3		3
By explosions of C H 4 gas, ...	1	6	7
By falls of coal, roof and sides, ...	14	29	43
By falls of coal and clay on strippings, ...	4	4	8
By mine cars, ...	6	18	24
By cars on the surface.	9	22	31
By machinery, ...	4	2	6
By blasts and explosions of powder.	11	7	18
By miscellaneous causes inside and on surface, ...	6	11	17
Total accidents from all causes, ...	58	99	157

Nationality of Persons Injured Fatally and Non-Fatally.

Nature of Accident.	Hungarian.	American.	Italian.	Polish.	Irish.	Welsh.	German.	English.	Russian.	Austrian.	Totals.
Fatal accidents, ...	17	11	8	7	6	3	3	2	1	. . .	58
Non-fatal accidents, ...	34	18	8	19	12	1	2	4	. . .	1	99
Total accidents, ...	51	29	16	26	18	4	5	6	1	1	157

Comparative Statement Showing the Number of Tons of Coal Produced per Fatality, Number of Persons Employed per Life Lost, and Number of Fatalities per Thousand Employes for the Past Ten Years.

Years.	Production of coal in tons for each year.	Number of fatal accidents.	Tons of coal produced per fatal accident.	Number of persons employed.	Number employed per life lost.	Number of deaths per thousand persons employed.
1884, ...	5,274,227	40	131,885	14,299	357.47	2,797
1885, ...	5,535,544	42	131,798	14,224	338.66	2,952
1886, ...	5,333,518	35	152,386	14,140	404.00	2,475
1887, ...	3,961,594	15	264,106	14,096	939.73	1,064
1888, ...	4,892,514	32	152,891	14,448	451.50	2,215
1889, ...	5,655,196	46	122,939	14,686	319.26	3,200
1890, ...	5,776,699	52	111,090	14,421	277.33	3,606
1891, ...	5,803,964	53	109,509	14,961	282.28	3,548
892, ...	5,842,721	48	121,725	16,277	339.19	2,949
893, ...	6,239,068	58	107,570	17,540	302.48	3,307
Totals, ...	54,315,045	421	129,014	149,092	354.14	2,824

Table of Comparison Showing Number and Different Causes of Fatal Accidents in the Fifth District for the Past Ten Years.

Causes of Accidents.	Years.										
	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	Totals
By water from old workings, . . .	...	...	...	...	...	...	...	9	...	3	12
Asphyxiated by gases, ...	...	...	...	...	...	...	...	6	...	...	6
By explosions of C. H ₄ gas, ...	...	1	1	1	...	1	1	...	...	1	6
By falls of coal roof and sides, . .	10	19	13	6	14	22	19	6	25	18	162
By blasts and explosions of powder,	3	3	2	2	4	4	1	4	2	11	36
By cars inside and on the surface,	17	8	5	3	6	11	19	6	15	15	105
By machinery, inside and on the surface, ...	2	3	1	1	2	...	7	5	3	4	28
By boiler explosions, ...	...	3	1	1	...	4	...	1	...	...	10
By miscellaneous causes, inside and on the surface, ...	8	5	12	1	6	4	5	6	3	6	56
Total fatalities, ...	40	42	35	15	32	46	52	53	48	58	421

COLLIERY IMPROVEMENTS MADE DURING THE YEAR 1893 IN THE
FIFTH ANTHRACITE DISTRICT.

A. Pardee & Co.

Hazleton Mine.—At this colliery two additional tunnels have been driven to the Wharton vein, finding it in both in excellent condition. The pumping plant at this colliery has been reinforced by the addition of one of the large and efficient duplex pumps built at the Jeanesville shops.

Laurel Hill.—At this colliery the efficiency of the steam plant has been increased by the addition of two high pressure boilers, known as the Porcupine or Hazleton boilers, each of 300 horse power.

Cranberry.—At this colliery two new slopes have been sunk on the Wharton vein, finding it in fair condition. The breaker is being remodeled to accommodate the increasing production and will be easily able to prepare 900 mine cars of coal daily. An additional mine locomotive has been placed at this colliery.

East Crystal Ridge.—At this colliery a new plane from the breaker at the new slope to the basin on the south side of breaker has been erected, and engines for hoisting coal from the slope placed in position on well built masonry foundations.

Lehigh Coal and Navigation Company.

No. 4 Colliery.—A new trial slope is being sunk on the Mammoth vein to open a new lift in this slope; it is as yet but 50 feet below the present bottom of the working slope.

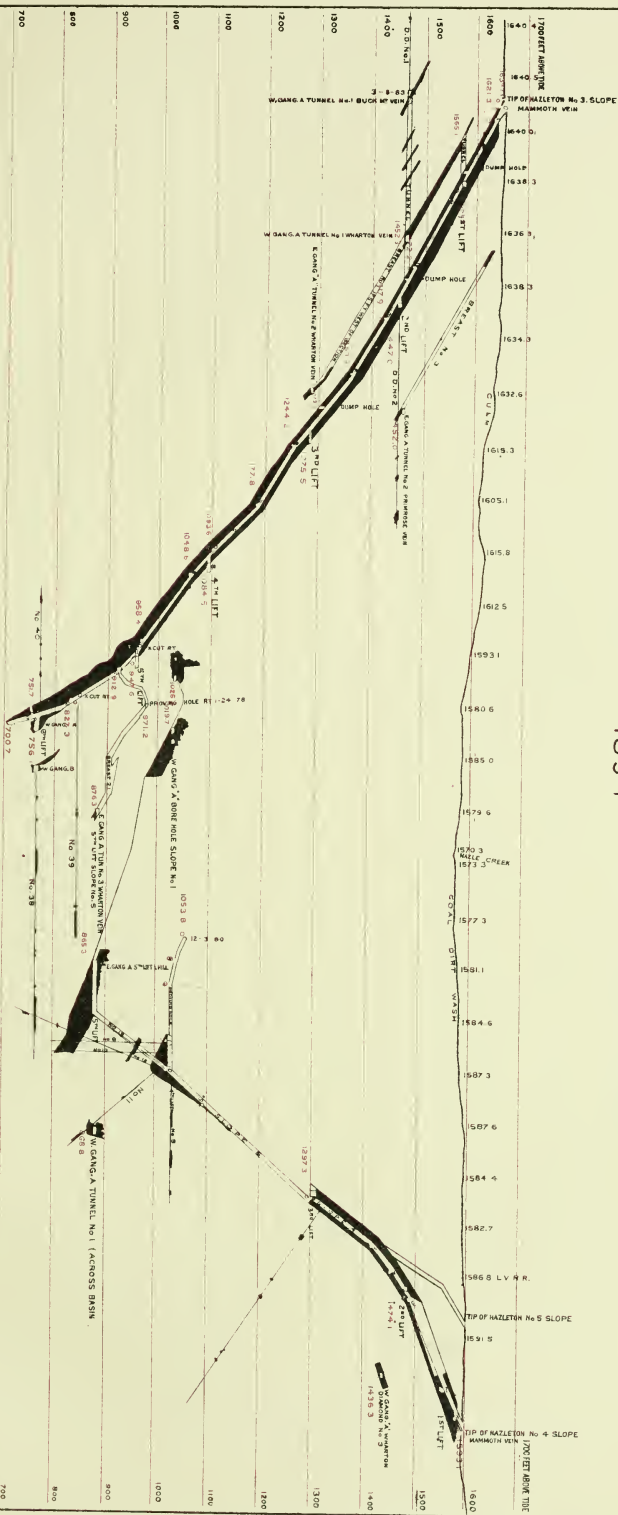
No. 6 Colliery.—At the shaft of this colliery and at a point in this shaft, 460 feet from the top of it, and 510 feet above the bottom, two rock tunnels have been driven on the North side of the shaft toward the Mammoth vein, forming the bottom and turnout of the new foot of the shaft and joining each other before reaching the vein; the one being driven around the shaft having a small plane and from it a descending grade to carry the empty cars to the junction with the other tunnel, which is driven with an up grade from the shaft in favor of drainage and easy movement of loaded cars. The lengths of these tunnels at present are 375 feet and 710 feet respectively; they will open up two lifts of Mammoth vein coal on an average pitch of 45 degrees, which has proved to be about fifty (50) feet in thickness and in good condition, and will make this a very productive colliery.

Hanto Screen Building.—Here a new screen and jig house has been erected this year doubling at least the capacity of the former building.

THE HISTORY
OF THE
CITY OF BOSTON
FROM 1630 TO 1800

THROUGH SLOPES 3 - 4 & 5. HAZLETON COLLIERIES

THOS. S. MC MAIR, ENGINEER.



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[UNIVERSITY OF CALIFORNIA]

It will be put in operation early in 1894, and the old plant will be repaired and remodeled. The complete plant will have a capacity of 5,000 tons of prepared coal per day. A new electric light plant has been erected, and in place of the 26 old cylinder boilers which were not capable of supplying steam enough for the old plant, there have been substantially built and enclosed four batteries of two each of the high pressure Babcock and Wilcox boilers of 832 horse power, to supply steam for the whole plant.

G. B. Markle & Co.

By this company the following improvements have been made during the year:

Jeddo No. 4.—Here a new double breaker has been built to take the places of both of the old breakers known as Nos. 3 and 4, new hoisting engines, breaker engines, and boilers have been erected and substantially housed. This breaker has a capacity of 1,500 tons per day. In order to convey the coal from Jeddo No. 3 to the new breaker, an inside plane has been constructed known as Plane E, from the gangway of No. 4 to the bottom of No. 3, a distance of 210 feet on an average pitch of 24 degrees operated by gravity, and has a five foot drum controlled by suitable brake.

Highland No. 5.—A new ventilating fan, of the Guibal pattern, 16 feet in diameter, has been erected at this colliery. Conveyors to carry the slate from the breaker to the bank have been constructed, and a new storehouse for mine supplies built. Inside this colliery, Plane A was driven in the vein and graded from the bottom gangway to the upper level gangway on the south side of the basin, a distance of 165 feet on an average pitch of fourteen degrees, which is operated by a drum six feet in diameter.

Plane B.—Also constructed in like manner from bottom gangway to upper level gangway, a distance of 285 feet on an average pitch of fifteen degrees; drum six feet diameter.

Jeddo No. 3.—A new pump and boiler house was built at this colliery, also a fresh water plant. At Jeddo, second basin East end, strippings an additional steam shovel and two locomotives were placed.

At Jeddo during the year a most convenient and commodious office building was erected by this company. Its walls are of native stone, and the building being large enough to bring all the different offices under one roof, greatly facilitates the transaction of business.

A new dwelling house was also built at Jeddo for the managing partner.

Highland No. 3.—This slope was temporarily abandoned the latter part of January, and the cover of clay was removed from the coal and is being used to fill in the trestle between Highland No. 1 and No. 2.

Linderman & Skeer.

East Sugar Loaf No. 2.—At this colliery the underground slope has been sunk another lift, making the sixth from the surface, and from this Wharton slope a tunnel has been driven to the Mammoth vein, opening up a new lower lift of this vein which is found in excellent condition. The slope is still being sunk and will continue to be until the basin in the Wharton vein is reached. A still lower lift of the Mammoth vein will probably be developed from this slope. The new breaker mentioned in the report of 1891, has fully realized the capacity claimed for it.

Humboldt Colliery.—This colliery was abandoned by the company on May 22, 1893, and the pumps were removed.

Upper Lehigh Coal Company.

This company has improved the four large dwellings at the western end of the town by having them repainted.

At No. 3 slope a new Worthington pump has been placed and lines of steam and column pipes laid for the same.

No. 5 Slope.—At this slope a large pump has been placed in the subterranean slope and a line of column pipe laid to the brow of the hill.

No. 6 Slope.—In this slope the double pump has been moved to the counter above.

No. 8 Slope.—A large single pump has been added to the pumping outfit of this slope. The rolling stock has also been extensively repaired.

At No. 5 boiler plant a Pollock heater has been erected which is showing very good results. The boiler plants of the colliery, including breaker and slopes are equipped with a new grate bar, which is simple in construction, which is known as the Leisenring Manufacturing Co's Patent Shaking Grate Bar, and which seems designed so simple in design, yet is so efficient that it must become universally used in boiler furnaces.

MINE FIRES DURING 1893.

At East Crystal Ridge—A. Pardee & Co.

On Monday morning, April 17, the pump house at the second lift of this slope was discovered to be on fire, and before help could be summoned, the fire had burned its way to the slope and the flames were carried up the slope, burning out all the crop timbers and causing the slope roof to fall for a great part of its length. Water was carried through hose from Cranberry, a distance of 1500 feet and the

coal which was on fire along slope was played on, but with the heavy pitch and the continued falls of roof, it was found to be truly "up hill work." General Superintendent Frank Pardee decided Wednesday morning, April 19, to try the experiment of accumulating a large body of water on the surface near mouth of slope and by means of large gates, allow it to rush into the slope in a flood. By his directions a huge wooden tank of 12,000 gallons capacity was constructed, with a broad gate, and the lever of the old slope bridge at the surface was attached to raise it, and so successful was the plan, that by Friday evening the fire was completely extinguished. Men were put to work at once to re-open and re-timber the slope, and work in this direction was prosecuted vigorously and the slope was, if possible, put in better condition than before the fire. On the 7th December fire was found in the same pump house, which destroyed the slope a second time, but it was extinguished by the same plan as the former fire, and in as short time. During the second fire, when the first flood of water was let loose and went rushing down the slope to the fiery mass of burning coal, reversing the air current and becoming a mass of scalding steam, three men, viz: General Superintendent Pardee, Mine Foreman Minford and Foreman Carpenter Most, were pretty severely burned through an error in not retreating far enough for safety; fortunately there were no serious results from the occurrence.

Drifton Slope No. 2, of Coxé Brothers & Co.

The third lift pump house of this slope was discovered to be on fire on the afternoon of Saturday, May 6th, and in a very short time the fire had burned its way to the hoisting slope and was soon raging amongst the timber thereon. This slope has a very steep pitch, and the fire being fed with air from below and an open slope to act as a chimney, it was soon burning the coal in the side pillars of the slope, and at one part of the slope where the coal was free, it soon burned the supporting timber out and allowed part of the pillar between the slope and steam pipeway of pump to run. On this slope fire a very novel experiment in putting out fire in a steep slope was tried; the nozzles of two lines of hose were fastened to the rear end of the gunboat of the slope, and the engineer was signalled to run it slowly down, and when the fire was reached, with no person at the nozzles. but at a secure distance up the slope, the water was poured on to the burning sides so efficiently that the fire was completely under control by Monday morning, and much loss of property was averted.

EXAMINATION OF APPLICANTS FOR CERTIFICATES OF QUALIFICATION AS MINE FOREMEN AND ASSISTANT MINE FOREMEN.

The examination of foremen and assistants was conducted in the Pine street public school building of the city of Hazleton, the use of which was granted to the board by the controllers of the city. The board was composed of Hon. Eckley B. Coxe, of Drifton, coal operator; John W. Scott, of Hazleton, and Michael Mulligan, of Upper Lehigh, miners, with Inspector J. M. Lewis.

Hon. Thomas J. Stewart, Secretary of Internal Affairs, was recommended by the board to issue certificates of qualification to the following named persons as mine foremen:

Names and Post-office address—

Patrick Somers, Hazleton.

William T. Jones, Oneida.

Richard J. West, Coal Dale.

John J. McNelis, Drifton.

Henry Ernst, Derringer.

Christian Miller, Freeland.

The board recommended the issue of a certificate under the new law to Lawrence Boyce, of Duryea, who was the holder of a certificate of qualification under the former law. Also to issue certificates of qualification as assistant mine foremen to the following named persons:

Names and P. O. Address of Persons recommended for certificates as Assistant Mine Foremen.

Charles Boner, Harwood.

Lewis Linderman, Derringer.

Henry Zimmerman, Nuremburg.

Peter E. Oster, Nuremburg.

James Abrams, Gowen.

Frank Inama, Gowen.

Vincent Kresky, Oneida.

Peter H. James, Milnesville.

William Walker, Ebervale.

Frank Carter, Hazleton.

Anthony Reilly, Hazleton.

John Bradwell, Nesquehoning.

Henry Panff, Nesquehoning.

John Black, Summit Hill.

Jacob A. Jeffries, Lansford.

REMARKS IN REGARD TO FATALITIES OF 1893.

There were fifty-eight fatal accidents in connection with the mining and preparation of coal for market during the year 1893, this being an increase of ten over the fatalities of the previous year. It is but natural to inquire into the causes of the increase, and by examining table No. 4 it will be clearly seen that with ordinary care, and the observance of the rules laid down in the law, many of these sad occurrences would not be recorded. The falls of coal, roof and sides are the causes for the largest percentage of fatalities, including those of coal and clay on the strippings, amounting to 31 per cent, or 18 of the 58, while cars inside and on the surface come next with 15 of the fatalities, or 25.9 per cent. Blasts and powder explosions being the cause of 11 deaths or 19 per cent; miscellaneous causes, inside and on the surface account for 9 deaths or 15.5 per cent; machinery for 4 deaths, or 6.9 per cent., while explosions of CH₄ gas resulted fatally to but one person, or 1.7 per cent. of the whole number of fatalities.

As in former years I have given full descriptions of some of the accidents, so this year some are described here, but table No. 4 is filled out so as to give the cause of accident and death briefly. The numbers correspond with those of the table.

No. 1.—At east Sugar Loaf No. 5, January 14, John Reshko, Hungarian, company man, 30 years of age, was instantly killed. The colliery was idle and Reshko and some others were cleaning ice and snow from the railroad tracks under the breaker. A freight car was standing on a branch and the locomotive pushed a truck loaded with railroad iron up the track, and to let it pass Reshko stepped to the side of the track, but there was not room enough and his head was caught and crushed between the two cars. He left a widow and two orphans.

No. 2.—At Sandy Run breaker, January 23, John Drakanovesky, Hungarian, loader, 16 years old, was riding on an empty gondola car under the schutes, and contrary to orders was at the brake; seeing that the brake wheel was going to strike one of the schutes, he moved along the platform of the car, slipped, as he said, and fell across the rail, was caught by the wheel and pushed along the track before it. While the wheel did not pass over him, his injuries were so serious that he died the next day.

No. 3.—At Beaver Brook colliery, January 26, Laslo Nemed, Hungarian, laborer, 24 years of age, a single man, had his leg terribly crushed by a fall of rock in the nearly level breast where he labored for Mike Paulfi. He was throwing some bone back on the gob about ten feet from the face, when the rock, without almost any warning, discharged two props and he was caught under the falling mass. He was sent to the State hospital at Hazleton, where in twenty-eight

hours after the accident he died. In my examination of the working place, it was very evident that the props under the rock were stood too far on one side; if a third one had been placed under the mass, it could not have fallen, but the weight was so one-sided that the props were swung out by it.

No. 4.—Patrick Fitzpatrick, Irish, company man, 60 years old, single, with Mike Lavick and John Brochinchick, at Spring Mountain No. 4 breaker, on the morning of January 25, were struck by empty railroad cars, which ran away under the breaker. They were at the time crossing the tracks to their work, and as the morning was cold there was quite a fog from the steam pipes along the tracks under the breaker. All three were struck by the cars, but only Fitzpatrick was seriously injured, one leg being fractured and other injuries received, which caused his death during the night.

No. 5.—Michael Verishock, Polish, laborer, 22 years old, single, was injured January 27, at Spring Brook colliery, by the coal falling on him while helping the miner to bar down the same. His spine and one leg were fractured. He died from his injuries at the hospital on February 27.

No. 6.—At Gowen No. 4 slope, February 3, Charles Shaffer, 16 years old, an American, patcher, who was employed to sprag the loaded cars near the foot of the slope, was caught between the hind end of a loaded car and the leg of one of the cross timbers, and his head was crushed so badly that he died the same night. As the "Barney" was coming down the slope empty, he did not have to sprag the loaded car and so left his place of work and got behind the loaded car, perhaps to push it along; when it was running around a curve it was derailed, causing the hind end to fly over to the side and he was caught by it.

No. 7.—At the top of Milnesville No. 3 slope, February 3, John Sachs, Italian, outside laborer, was employed in loading rock from a shute into stripping or dumping cars. While two of these cars were being moved down the grade by him to give room for empty cars under the shute, he attempted to couple them and in so doing, got his head between the bumpers and was instantly killed, as the weight of the cars caught him so as to allow of no escape. There was nothing to be gained by the risk he ran, as the cars would have stopped when the loaded car in front was reached and then they could have been coupled without danger to any one.

No. 10.—At Highland No. 2, February 13, James Dugan, Irish, miner, 45 years old, was killed by the premature explosion of a blast which exploded before he turned away from it, as his laborer testified. He must have ignited the powder in the squib he was using. A widow and seven orphans mourn his loss.

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SECTION
OF
LAUREL HILL No. 2 MINE

WHERE GAS EXPLOSION OCCURRED
ON JUNE 9TH 1893.

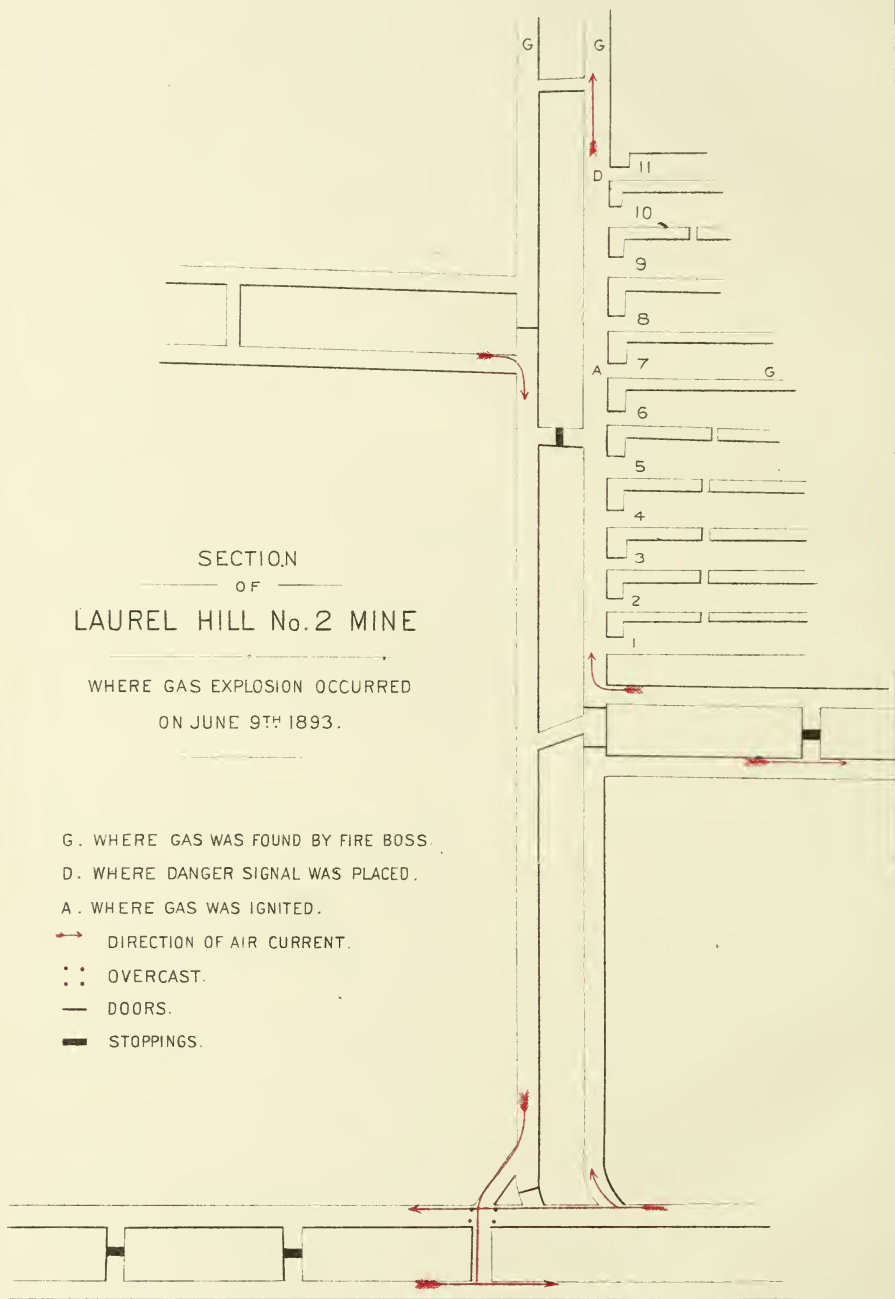
- G. WHERE GAS WAS FOUND BY FIRE BOSS.
D. WHERE DANGER SIGNAL WAS PLACED.
A. WHERE GAS WAS IGNITED.

→ DIRECTION OF AIR CURRENT.

∴ OVERCAST.

— DOORS.

■ STOPPINGS.



No. 11.—At No. 4 slope, Milnesville, February 23, Michael Dougherty, Irish, miner, 35 years of age, was instantly killed by two runaway cars on slope, which left the track at the latches to upper lift, and and ran into and demolished a board shanty where dynamite was thawed by a steam heater, and in which Dougherty and two other persons were at the time; four motherless and fatherless orphans mourned his death. This death was caused by the carelessness of the top men in handling the cars, the unnecessary delay in having the safety block rebuilt, which had been off for a week at least, and the disobedience of orders by the deceased and those with him in being in the shanty at all.

Nos. 15 and 16.—At East Sugar Loaf No. 6, March 17, Joseph Guidos, 24 years old, and Joseph Yonkofski, 33 years of age, both Poles, and both miners working as partners in breast four in Primrose vein, were found in the schute of breast 3 on this date. Yonkofski was dead and Guidos unconscious and fatally injured, as he died at the hospital the same day without any lucid interval. These men were engaged in driving a cross heading to breast 3 which was driven up and stood finished, and they stayed in on the night of the 16th to work, and when firing a shot in the heading, retreated to the heading below, and as the coal from the shot and loose coal fell down their manway they must have decided to go down the manway of breast 3, and in doing so, the last man slipped and fell and carried the leading man down with him to the schute of the breast, where they were found by the fire-boss. When he was making his examination, he reached the foot of their breast and found their ladder up and their coats and cans at the foot of the breast. Fearing something was wrong, as he could get no answer from the face, he summoned help, and going up breast 3, as he knew of their being at work on the heading, and not trusting to go up their manway on that account, he found them as described; Yonkofski left a widow and one child in Poland.

The Laurel Hill Disaster.

On the morning of April 3, by the firing of a blast in breast 21, in east gangway "A," of tunnel No. 3, Wharton vein, fifth lift of slope No. 5, the water in the abandoned portion of No. 3 slope, Mammoth vein, was tapped. As no work had been done in any of the underlying veins of No. 3 slope below the portion filled with water, it was very difficult to understand how this calamity occurred. By consulting the map and section, it will be seen that while it is true no work was done in the underlying veins, a proving hole in what appeared to be a lead to another split of the Mammoth vein or the overlying Primrose vein, was driven to the top of an anticlinal, and a small trial gangway driven westward on the apex of this anticlinal, more than fifteen years

ago, as the date of survey on section is January 24, 1878, and into the face of this proving hole, the blast in the Wharton vein breast blew through thus allowing the compressed air to rush out first extinguishing the lights of nearly all the men, then the water, standing in sixty yards of the slope, its airway and the pumpway from the fifth to the fourth lift, with a fall of 100 feet, rushed in.

Either by the rush of wind or water the manway of breast 21 was blocked, and the pillar between breast 20 and 21 being the weakest point, it was torn out by the water and being a slippery nature was taken out clean to the face of breast 20, and upon the giving way of the battery of breast 20, the coal, slate, and timber was carried down the breast to the gangway, completely blocking the same. Had this pillar remained, I believe no lives would have been lost, as it is very evident that miners Trembath and Hodgson, when firing the blast, would, as usual, have gone around the pillar toward the face of the breast 20, where miner Williams was, and being above the crop heading, the water would not have risen to where they were, but with the washing out of the pillar and the blocking of the manways they were carried down breast 20, with coal and rock, and buried beneath the mass. The bodies of Williams and Trembath were recovered on Friday night and Saturday morning on the gangway, and the body of Hodgson was found in breast 20 nearly twenty feet from the gangway.

Trembath and Hodgson each left a widow and three orphans to mourn their untimely decease.

Many of the persons employed in the gangway and breasts, both inside and outside these two, had narrow escapes from drowning in trying to reach the slope, while the water was so high in the gangway, but no one was seriously injured.

A General Description of the Remodeling of the Cross Creek Coal Company's Coal Breaker, at Colliery No. 10, Eckley, Pa.

The original breaker was constructed in 1861, and had the old method for preparing coal. In 1893, it was found necessary to remodel the old breaker, or build a new one; and, as no surrounding location adjusted itself to the condition of the various surface hoists, it was decided to remodel the old breaker.

As it was necessary to operate the breaker while remodeling it, the work of construction had to be carried on without interfering with machinery, etc., which was accomplished without suspending the colliery for a single day.

The plan of construction is shown in the accompanying plates.

Plate I is a general plan of the breaker as remodeled, showing the location of the rools, screens, etc., also, the method of conveying

OF THE RESOLUTION

BY JOHN F. B. JOHNSON

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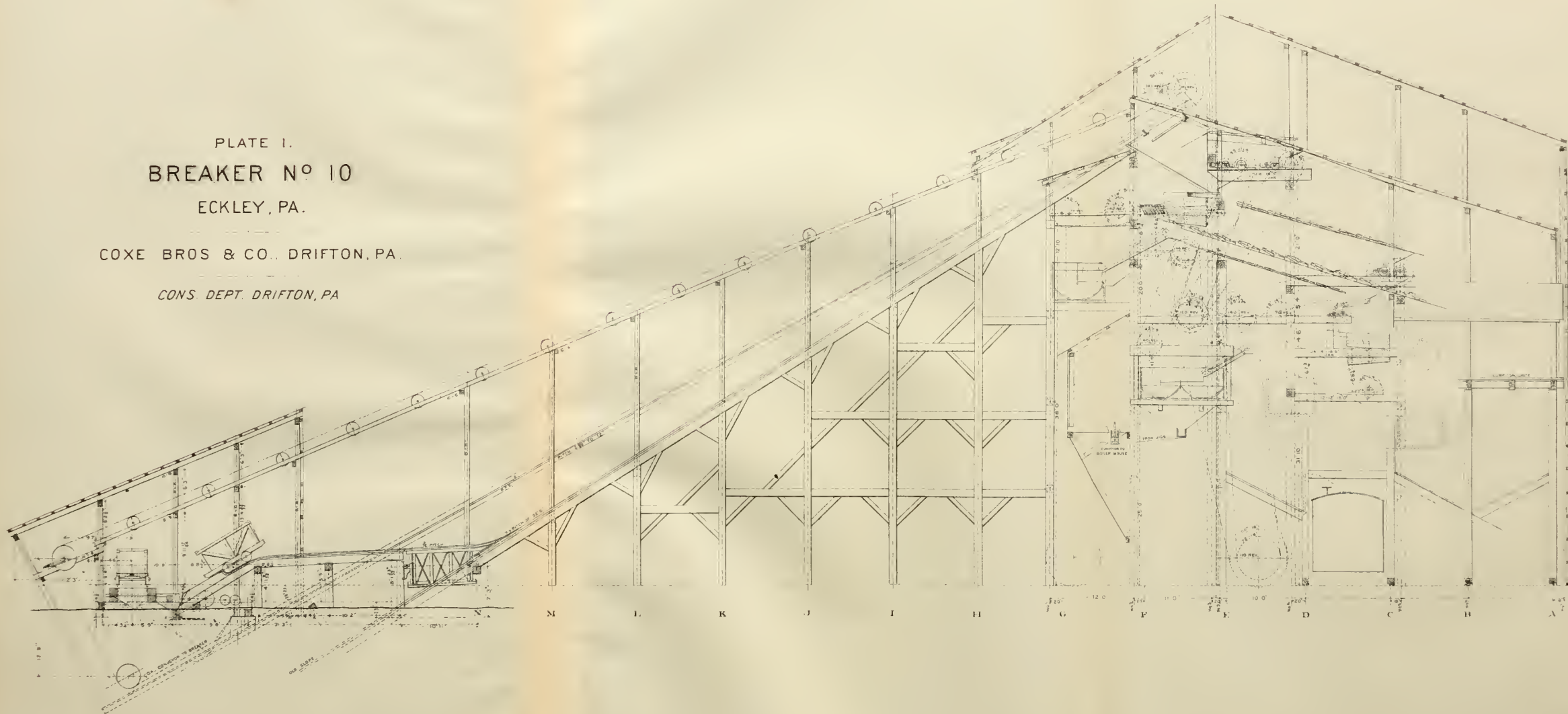
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PLATE I.
BREAKER N^o 10
ECKLEY, PA.

COXE BROS & CO., DRIFTON, PA.

CONS. DEPT. DRIFTON, PA.



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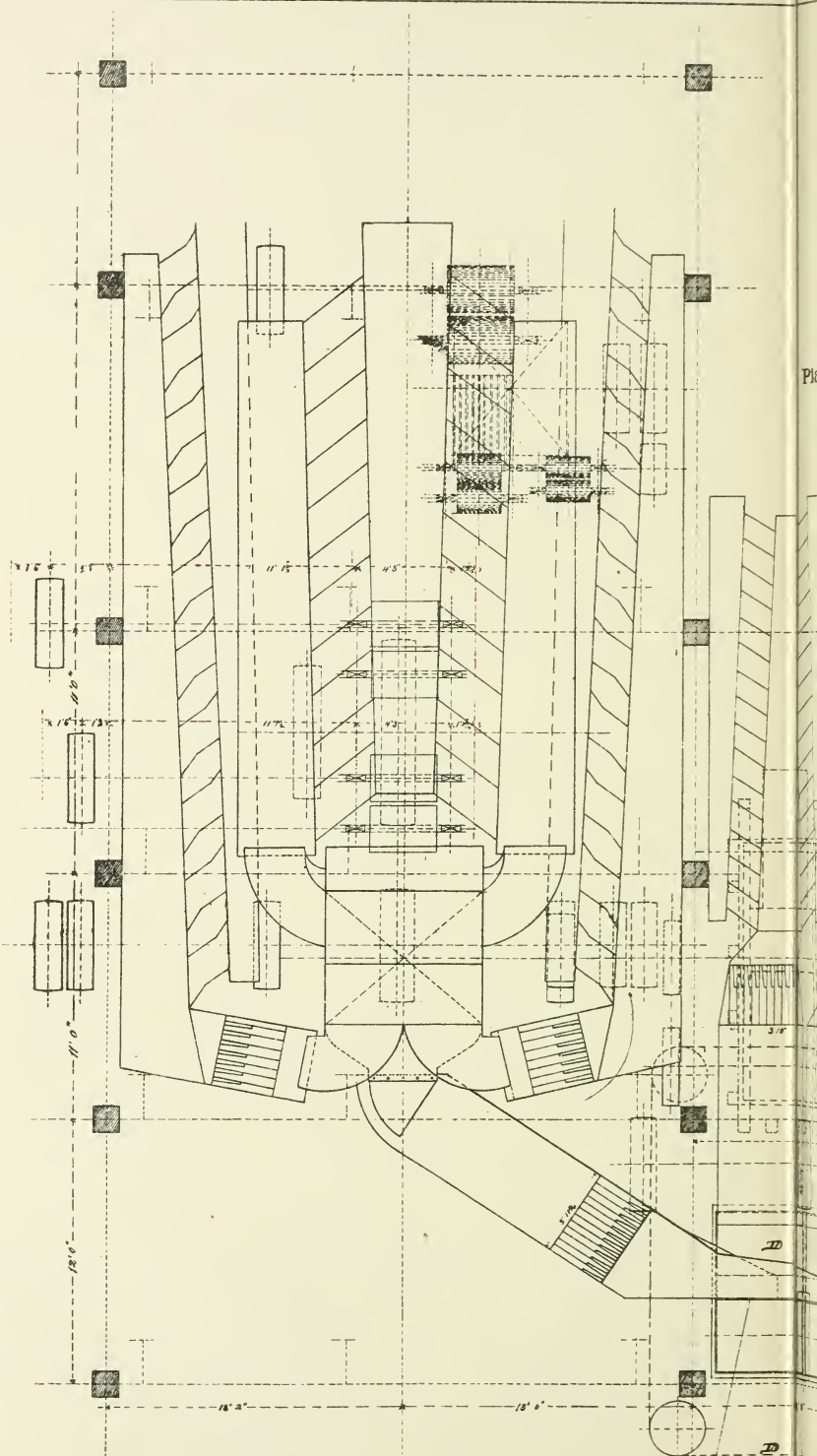
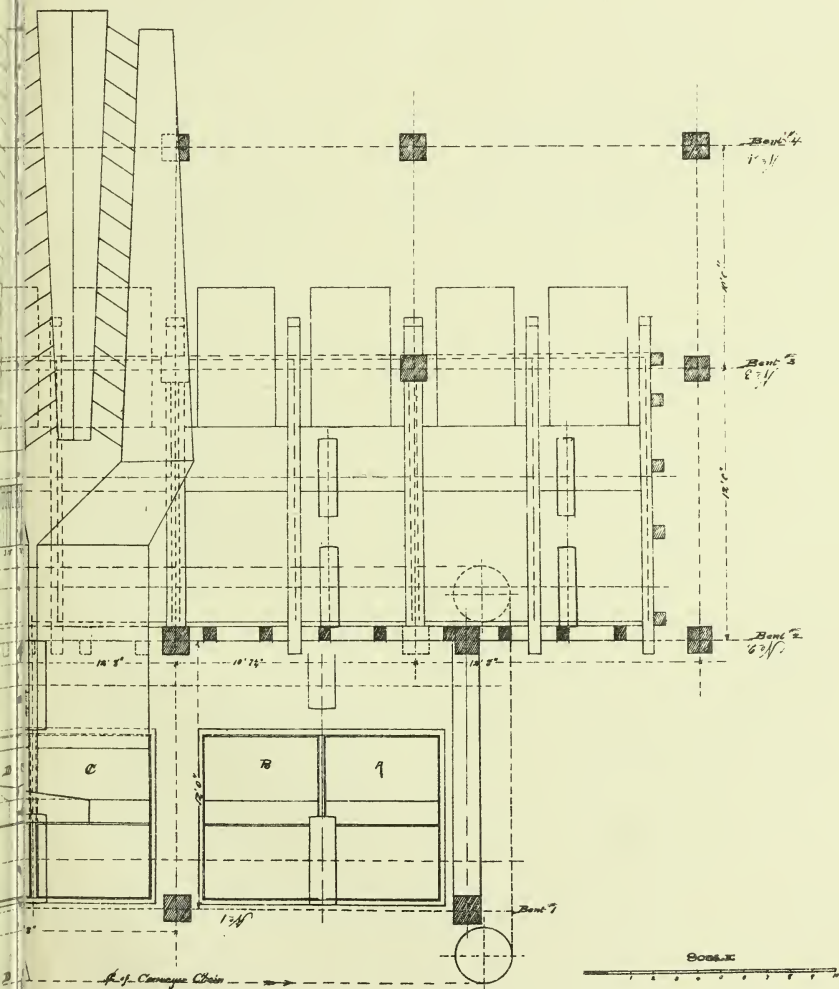


Plate III



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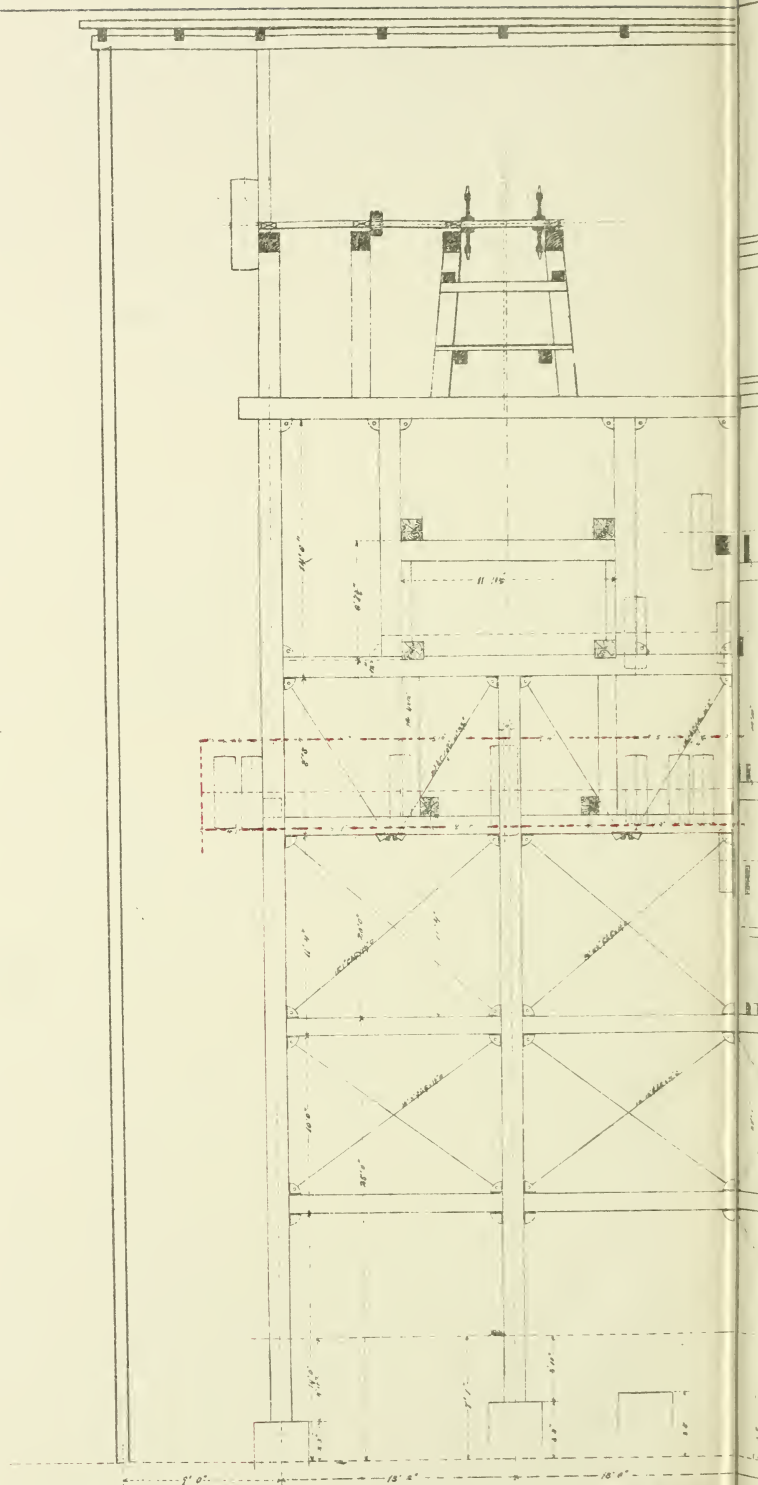
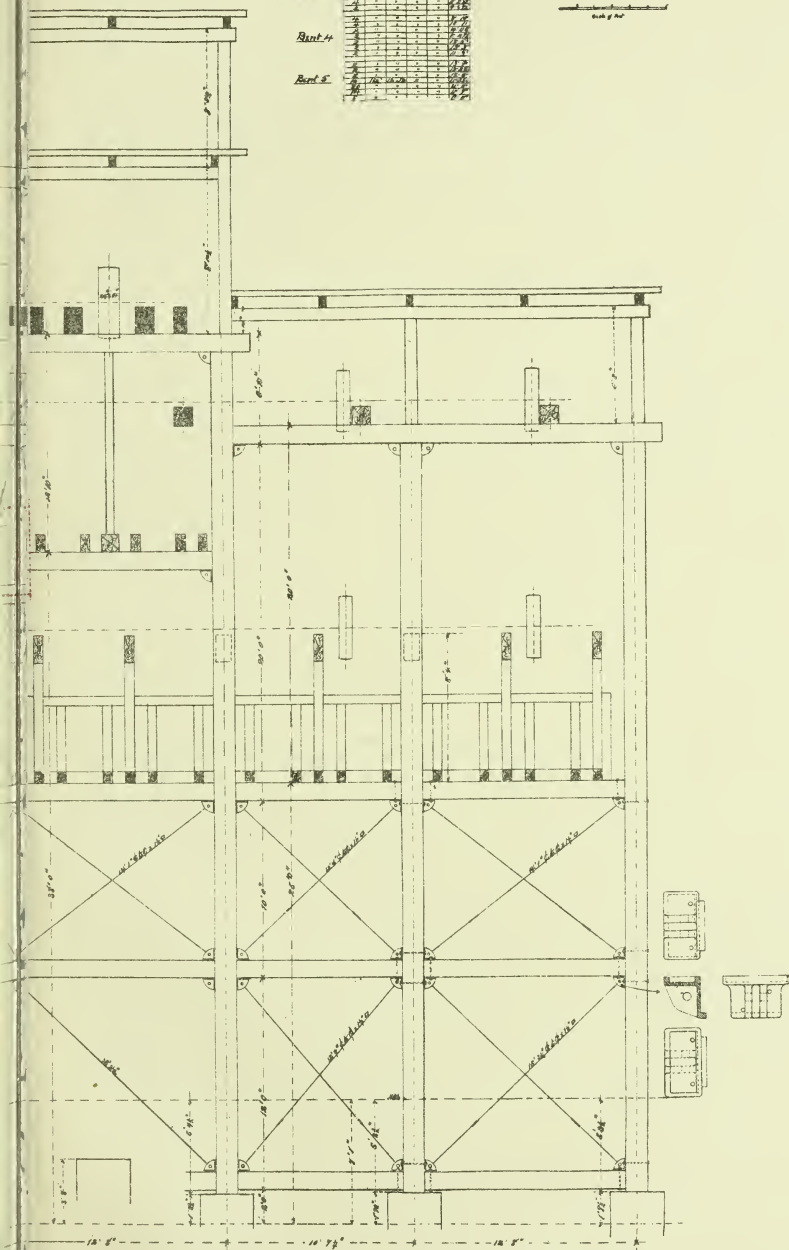
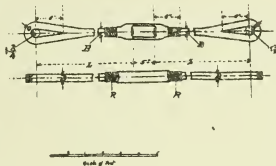
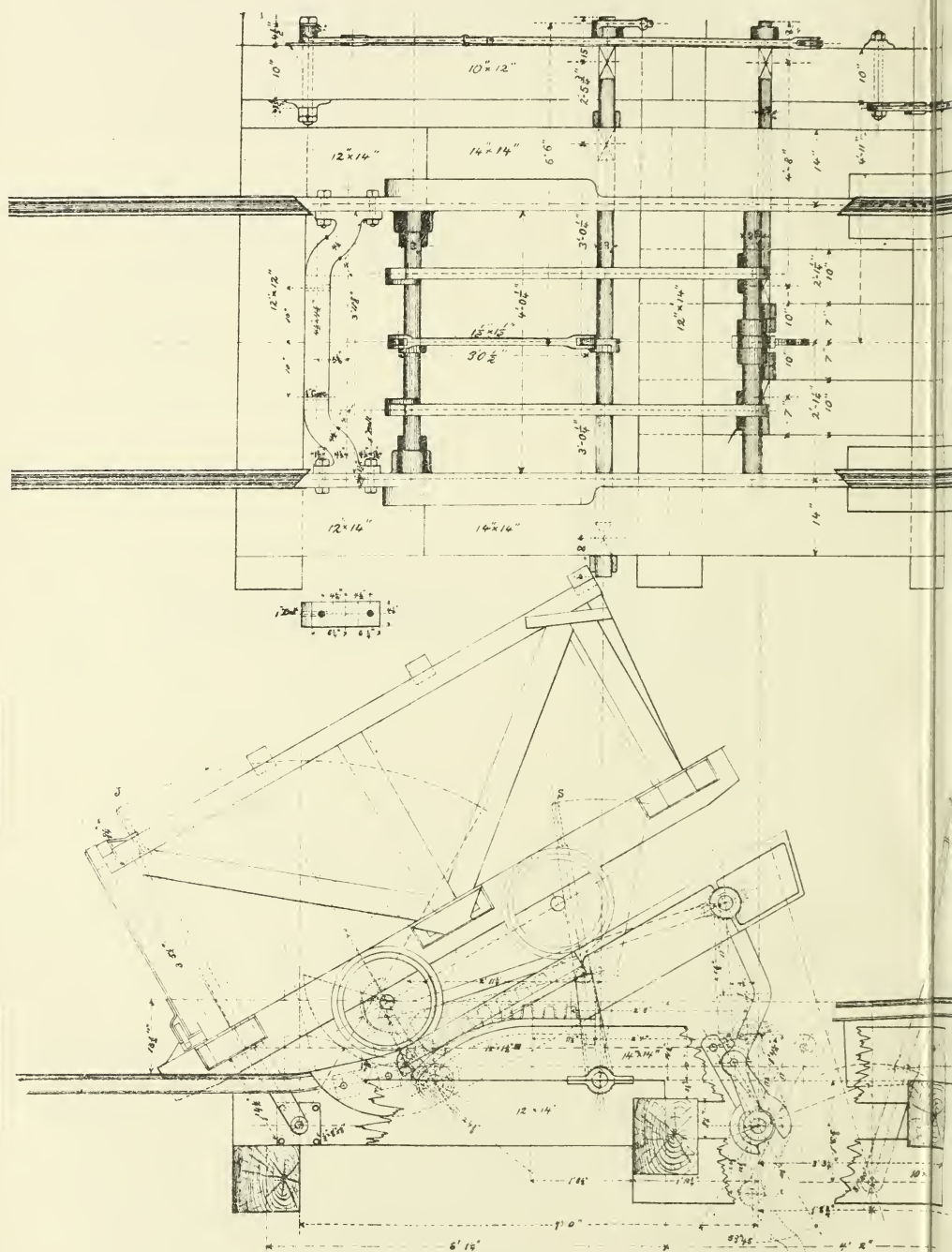


Plate IV

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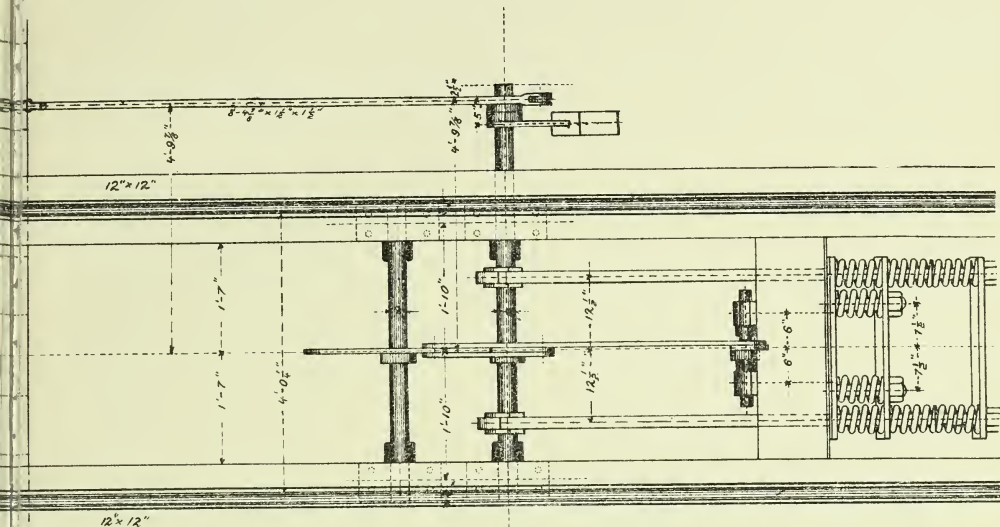
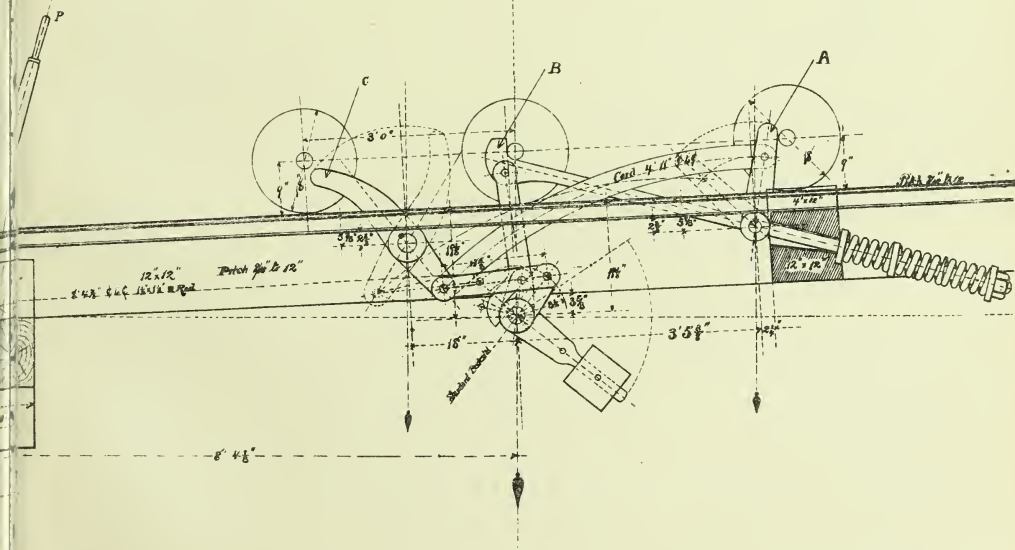
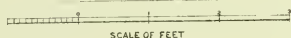


PLATE VI.
DUMP AND STOP-BLOCK
ECKLEY NO 10.

CONS. DEPT. COXE BROS. & CO., DRIFTON, PA.

DEC. 1ST 1892.



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the coal from the bottom of the plane to the top of the breaker. The cars are hoisted out of the slope to the self acting bridge and are run back, as shown on the plate, to where the coal is dumped into a schute which feeds the conveyor. The conveyor was constructed completely as far as the platform at the top of the breaker, before the new platform was put in. A temporary schute was run from the conveyor discharge to the platform until the old dump and car hoist were taken out.

Plate II is a ground plan showing the relative location of the old and new foundation and bents; also, showing what old bents were taken out. Bents "1" to "5" represent the new construction. Bents "A," "B," "C," etc., represent the old structure.

The plan of construction was carefully worked out so as not to have new bents interfere with the machinery of the old breaker. The posts of the new structure were spliced in continuous lengths, and the old frame was not disturbed until the new frame was a completed structure. All the line shafting and other machinery for the new breaker gradually took the place of the old machinery. There were seven revolving screens taken out and replaced by double gyrating screens. A new screen was fitted up already to slide onto the head blocks and the old screen was taken out at night and the new one slid into place ready for operation the next morning. The night work was aided considerably by the use of the electric light. The remodeling of the breaker increased its capacity seventy-five per cent.

Plate III shows in detail the plan of construction of the jigs. The coal coming from the screens enters jigs "A," "B," and "C." The pure coal from the top of "A," "B," and "C," is carried by conveyors to a schute where it is inspected and runs to the pockets; while the doubtful coal and slate is taken out of the slate hoppers of "A," "B" and "C" and goes to a conveyor, which carries it to "D," from "D" it goes to the intermediate picking schutes where the pure coal, the doubtful coal, and the slate are separated by boys. The pure coal is inspected and runs to the pocket, the doubtful coal is picked into a schute which carries it to the crushers, and the slate is carried by a schute to the conveyor, which deposits it on the slate bank.

Plate IV is a section through bent "2" (Plate II), showing the general structure after remodeling; also, the method of bracing the bents with truss rods and brackets. The brackets are shown in detail in the lower right hand corner.

Plate V shows a detailed section of the conveyor which conveys the coal to the top of the breaker. As will be seen by the plate, the flights are 3' 6 $\frac{1}{2}$ " long, and are fastened at each end to an endless chain.

Plate VI is a detailed plan of the dump and stop-block at the bottom of the plane for dumping the cars which are run over the surface

from other slopes. A trip of cars is run onto the track to the right in the plate, which has a pitch of 9-16" to 12". The forward axle of the car strikes "A" which drops hook "B" and raises lever "C," thereby allowing the forward axle to pass over hook "B," the forward axle strikes lever "C," which throws up hook "B" which catches the back axle of the forward car and holds the whole trip. The operator pulls lever "P," which drops hook "B," which allows one car to run onto the dump. He then dumps the car by pulling lever "S." After he sees that the coal is all out of the car, he pulls lever "J" which allows the car to run off of the dump, and he is ready for the next one. In this way, one man is enabled to handle the whole trip of cars, dumping them very quickly.

DESCRIPTION OF A FURNACE WITH AUTOMATIC STOKER, TRAVELING GRATE, AND VARIABLE BLAST, INTENDED ESPECIALLY FOR BURNING SMALL ANTHRACITE COALS.

By Eckley B. Coxe, Drifton, Pa.*

Although I have been familiar with the burning of anthracite for many years, I found when I came to study the matter carefully that I was far from thoroughly understanding it, particularly with reference to the burning of the smaller sizes, and that the literature of the subject, which was not very extensive, had more of a tendency to confuse than to enlighten me. I began, therefore, to investigate the subject so as to arrive, if possible, at some definite principles applicable to the question. With the aid of my assistant, Mr. John R. Wagner, I began at Drifton a series of experiments upon the burning of small anthracites.

We first erected a small furnace with a grate three feet long and two feet wide, with which we experimented about two months. From the information thus acquired, we designed and built another furnace of about the same size, which gave us facilities for extending our investigations still further. After experimenting several months with the second furnace, we built a third one, which was much larger, having a grate area of about 68 square feet, which was exactly the size of the grate used in the boiler-plant of Coxe Bros. & Co. We experimented with this several months, and then erected an improved furnace, a description of which is the object of this paper, and placed it in one of our regular boiler-plants.

I quote from the report of the Coal Waste Commission some of the results of our experiments:

"A number of experiments were made in the testing laboratory of Coxe Bros. & Co., by Mr. John R. Wagner, in burning small coals, from which the following conclusions were arrived at:

* Being part of a paper read at the International Engineering Congress at Chicago in August, 1893.

"A series of careful experiments were made with a forced draught, obtained in one case by a fan and in the other by a steam jet, which showed:

"First.—That the ashes produced by a steam jet were never as low in carbon as those produced by the fan; that is, an appreciable larger per cent. of the carbon was utilized by the fan-blast. This appears to be due to the fact that when the carbon in the ash over the grate is reduced to a certain point the steam dampens it somewhat, and it ceases to burn sooner than it does when dry air only is blown through it.

"Second.—That with the fan-blast the rate of combustion per square foot per hour is greater than with the steam jet.

"Third.—It was found that where a bed of coal was ignited and burned out, the percentage of carbon in the ash is much less than where coal is successively added to the burning mass. In practice it is not generally possible to allow the bed to burn out sufficiently before adding the cold, unignited coal; the result is a damping down of the fire, which causes the ash to cease burning sooner than it would do if there were no reduction of temperature and checking of the draught due to the adding of the coal.

"Fourth.—There seems to be no doubt that the introduction of steam in the ash-pit decreases very materially the tendency of the coal to clinker on the grate in comparison with the fan-blast or natural draught. It also changes the color, volume, and character of the flame, and, owing to producer action, increases the distance that the flame extends beyond the bridge-wall. In many cases it is not practical, or at least it is very difficult, to fire the smaller sizes of coal without the steam jet on account of the clinkering. This effect of steam on clinkering is probably due to the fact that the steam, to a certain extent, moistens the ash close to the grate and prevents the ash from reaching there at as high a temperature as it would with dry air. It is also probable that the decomposition of the steam into carbonic oxide and hydrogen, which takes place to a certain extent, and which, of course, is accompanied by a reduction of temperature, tends to prevent clinkering. The decomposition of the steam, accompanied by the formation of carbonic oxide and hydrogen, will probably account for the difference in the flame referred to.

"Fifth.—A careful study of the burning of culm, that is, the burning of small coals with more or less dust in them, in these and other experiments, seemed to show that in almost all cases it is accompanied by a very high percentage of carbon in the ash, which analysis showed, in some cases, reached 58 per cent. Unless special precautions are taken to prevent it, a large portion of the fine coal runs down through the grate. When the culm gets red hot it acts almost

like dry sand and works its way into the ash-pit, thus increasing largely the percentage of carbon. Where coal has to be transported any distance, the value of the culm at the mines being very small, it is probable, from the investigations made, that it would be cheaper to remove the dust and transport only the larger coal.

“Sixth.—It has been found that the percentage of iron pyrites, which occurs to a greater or less extent in all coals, increases very rapidly with the smallness of the coal. This is due to the fact that the iron pyrites occur generally in thin layers or in incrustations on the coal. These thin layers are broken off and pulverized in the preparation and handling of the coal, and are therefore found to a much greater extent in the very small coal. It is, of course, well known that the presence of iron pyrites in fuel is very undesirable, as it generates sulphurous acid and has a tendency to destroy the grates or other iron work around the boilers, besides, in many cases, increasing the tendency to clinker.

“Seventh.—That while the fan-blast produces the best ash and gives a more perfect and greater rate of combustion, yet in many cases it is more advantageous to use the steam-blower on account of the clinkering, which may cause very serious trouble. In certain localities, particularly in cities, the noise of the steam-blower is sometimes a disadvantage.

“Eighth.—While it is not positively demonstrated, it is thought that the question of mixing small coals from different veins or different localities is a matter of importance. It would appear that sometimes two coals, each of which, when burned separately, give reasonably satisfactory results, when mixed together, clinker and give trouble, probably because the ash of the combined coals forms a much more fusible silicate than either of the ashes separately.

“Ninth.—It would seem that the combustion of the small anthracite is more perfect when the coal remains undisturbed, or as nearly as possible in the condition in which it was put in the fire, instead of being turned over so that the partially consumed and unconsumed coal are mixed together.”

Our experiments were not sufficiently extended and exhaustive to justify us in asserting that all these conclusions are absolutely true, but only that they seem to us probable.

Another point referred to in the same report, and which our further experience seems to confirm, is the fact that the temperature developed by the burning of the smaller coals decreases with the size of the coal; this naturally involves a larger heating surface in the boiler in order to develop the same number of horse power—that is to say, if you are burning pea coal and obtaining one horse-power for every nine square feet of heating surface, you would probably require

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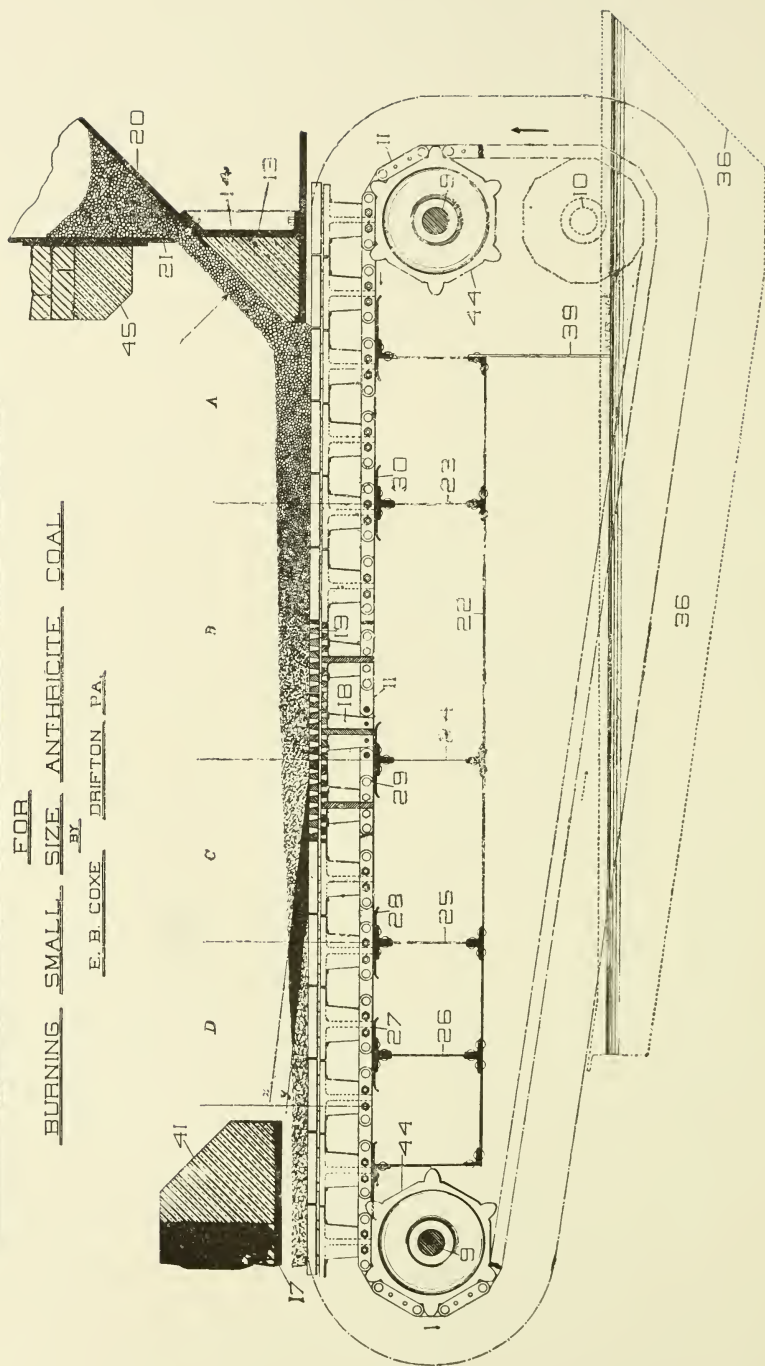
PLATE I.

DIAGRAM ILLUSTRATING THE PROCESS AND FURNACE

FOR

BURNING SMALL SIZE ANTHRACITE COAL

BY
E. B. COXE DRIFTON, PA.



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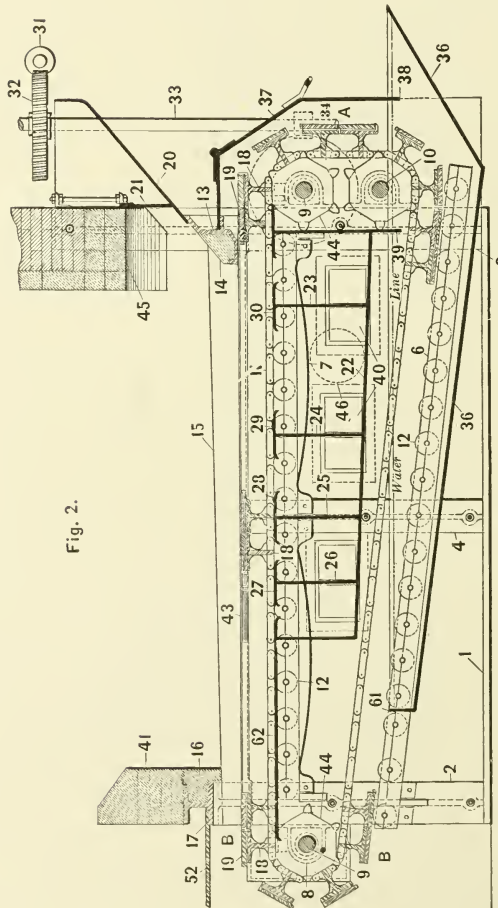


Fig. 2.

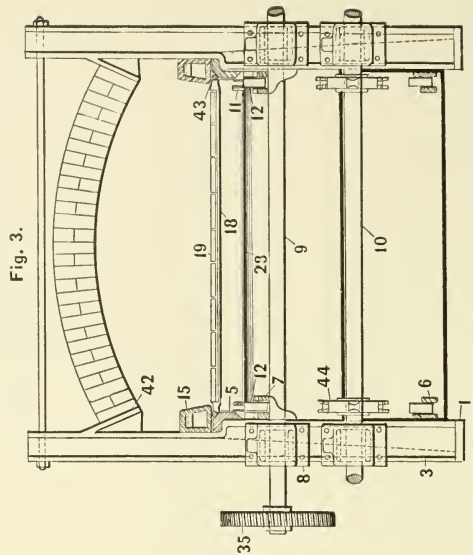


Fig. 3.

PLATE II.—Working drawing from which the iron work of the automatic stoker furnace for the Stirling boilers at No. 3 Colliery, Oneida, Schuylkill county, Pa., was built.

from 20 to 25 per cent. more heating surface if you are using No. 3 Buckwheat; although you may be evaporating practically the same amount of water per pound of combustible.

It is also stated in the paper that it is possible that the best results in burning these small coals may be obtained by using a blower under the grate and a suction apparatus in the stack. This statement should be modified, as the following is probably a more correct statement of the case: Where the passage of the gases through the boiler-furnace to the stack is free and unimpeded, and the stack reasonably high, it may be necessary to check the draught by a damper near the outlet; while should the furnace and boiler be so constructed that the gases travel a long distance and are more or less seriously impeded in their flow to the stack, which is not very high, it may be necessary to put some suction apparatus in the stack. In other words, there is a certain speed for every boiler-plant which the gases should have in passing through, in order to obtain the most economical results, and some device should be adopted to maintain it.

Having determined, in a general way, what seemed to me the proper conditions for burning small anthracite economically, I started to design a furnace which would, as far as possible, fulfil the required conditions which were:

1st. To ignite the coal and burn it up without mixing it with fresh fuel; that is, that fresh fuel would not be added to the already partially consumed coal.

2d. To have the furnace so arranged that the combustion should be continuous and uniform; that is to say, that when the furnace was in use the condition of the fire would be practically the same at any hour of any day of any week of the year.

3d. To make the work of firing as easy as possible, so that a minimum number of firemen would be employed, and that the whole operation of the furnace would be controlled by an intelligent man, who would have more use for his brains than for his muscles. The idea being that in a large and complete plant the coal would be brought from the source of supply by elevators or drags, and fed to the furnace without hand labor, and that the ashes would be carried to or dumped into a pocket, where they could be easily loaded into cars in the same way. No pokers, slice bars, or other similar tools should be needed.

The illustrations which will be referred to in the description of the process are as follows:

Plate I.—Diagram illustrating the process and furnace for burning the small sizes of anthracite coal.

Plate II.—A reduction of the working drawing from which the

iron work of the automatic stoker furnace for the Stirling boilers at No. 3 Colliery, Oneida, Schuylkill county, Pa., was built.

Plate III.—Detail drawing showing the construction of the grate-bar and water-back which forms the side wall of the furnace, the air seal by which the air is prevented from passing between the movable grate-bar, and the fixed side of the furnace and the construction of the chain which carries the grate-bars, also the method of securing the upper part of the grate to the lower.

Plate IV.—Side and transverse elevation of the Stirling boiler plant at No. 3 Colliery, Oneida, Pa., showing the manner in which the grate is placed under the boilers, also the arrangement for moving the grate and supplying air to the furnace.

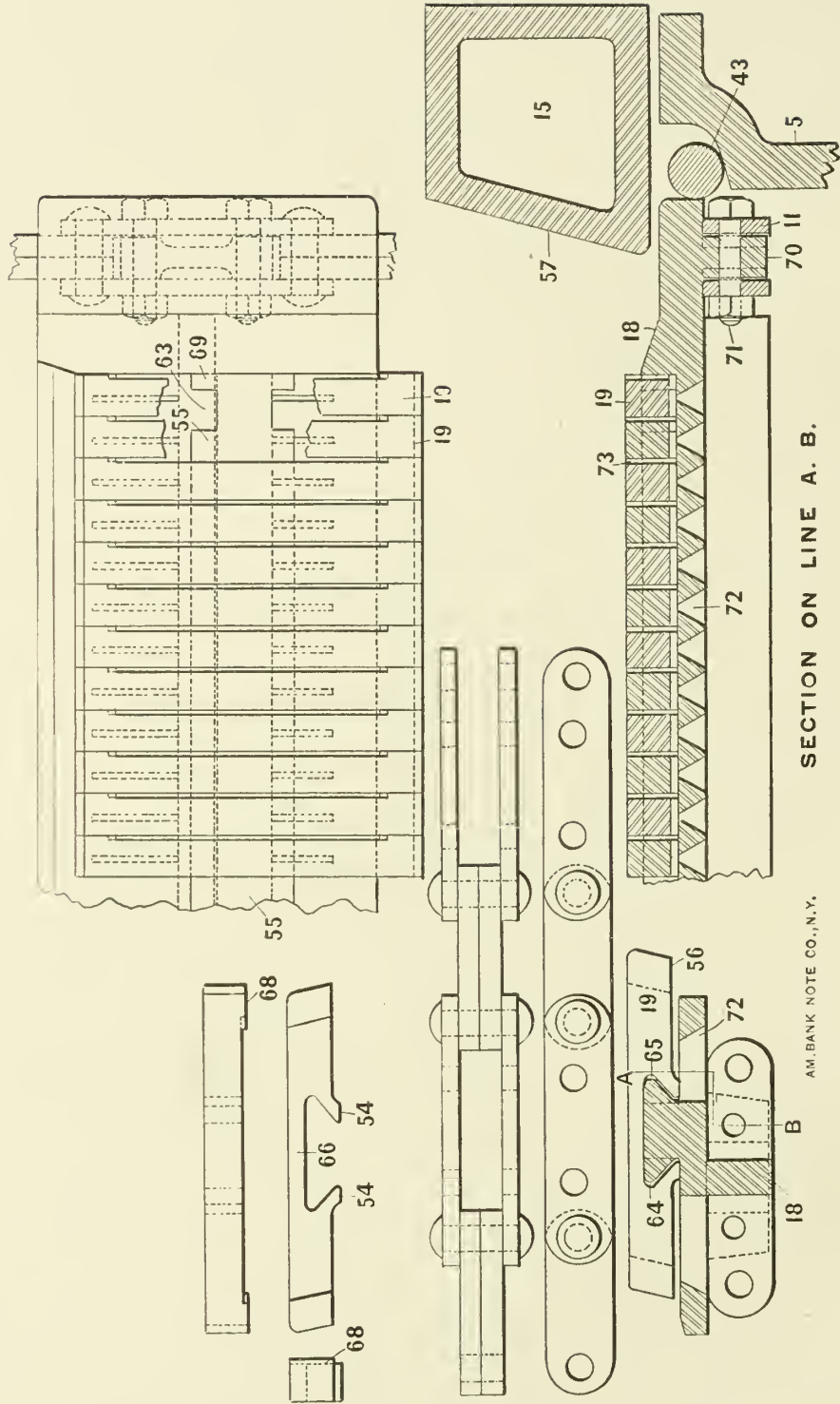
Plates VIII and IX.—Views of the boilers at the No. 6 slope at Eckley, Pa. Plate VIII being made by removing the front of the boiler house, and shows the running mechanism of the grate and the blast-pipe. Plate IX is a view of the same boilers taken from inside of the boiler house, and shows in the background the fan connected with the blast-pipe and the next set of boilers not yet finished, for which another stoker is being built.

The diagram in Plate I which I shall use for the general description of the grate is not an exact representation of the furnace as built, it being intended more especially to explain the principle of its action.

The furnace consists essentially of a travelling-grate, moving from the right toward the left. The coal which is brought to the hopper 20 by a drag, spout, or any other convenient method feeds down by gravity over the fire-brick 14 onto the travelling-grate. The coal is carried slowly at the rate of from $3\frac{1}{2}$ to five feet per hour toward the other end. In the beginning of the operation, the coal on the right-hand side of the furnace is ignited, the other part being covered with ashes or partially consumed coal. After the furnace is heated, the fire-brick 14 which we call the "ignition brick," becomes hot, and the coal passing down under the regulating gate 21, becomes gradually heated, and by the time it reaches the foot of the ignition brick is incandescent. In some cases the coal becomes hot enough to ignite soon after it passes the regulating gate 21. Under the grate there are a number of chambers made of sheet-iron which are closed on all sides except on top. The blast from the fan which is used to furnish the air is blown into the large air chamber which is the second one from the right. These air chambers are open on top, but the partitions are covered by plates 27, 28, 29 and 30. These plates are of such width that no matter what may be the position of the grate-bars 18, there is always one resting upon this plate, so that the air cannot pass from one chamber to another except by leakage along the bar.

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PLATE III.



DESCRIPTION OF PLATE III.

(After the report was printed the following correction or amendment of the last paragraph on page 167, relating to plate III, was received from Mr. Coxe.)

The grate is formed of two parts; the lower, 18, which is T-shaped, consisting of the vertical rib and the horizontal plate. The horizontal plate is perforated with a number of conical-shaped holes, wider at the bottom than at the top, or is cast with oblong openings as is shown in the drawing. At each end is a lug, which fits into the chain, 11, also shown in Plate III. There are two holes cast in the bar, and two holes drilled in the alternate or long links of the chain and by means of two bolts each end of the bar is fastened to the chains. The upper part of the bar, 19, consists of sectional bars, which are about $7\frac{3}{4}$ inches long by $\frac{5}{8}$ inches wide, being tapered towards the bottom and by means of the projections, 68, leaves an air space of $\frac{1}{8}$ inch between the succession bars. The slots are so arranged that the lower ones are immediately under the center of the upper bars, 19. In this way it is impossible for the coal, no matter how fine, to roll through, as the natural slope of the coal will not reach the openings in 18. The construction and simplicity of the small upper or sectional bars, 19, is readily understood from Plate III, from the upper right hand view of which the manner of securing them to the main or carrying bars is shown.

At the right hand end of the dovetail, 55, is a slot, 63, which will admit of the lower part, 54, of the small bars to drop into the position on the main bar when the bar is moved laterally to the left and another dropped in the slot and moved along to the left, until the whole carrying bar is filled. To keep these bars from dropping out of the slot in which they enter, the bars are moved to the right, when the last bar is held by the partial dovetail, 69, and the second from the right is held on by the dovetail 55, to the left of the slot, 63. Having moved all the bars to the right of the carrying bar, and there being no force acting on the bars in the direction to the left any more than to the right, and since it requires a large force to move the extreme right-hand bar to the left, having to push all the others, there is no tendency for it to drop out, and this method of fastening the bars is very simple and effective. To remove an imperfect bar, a blow of a hammer on the thin part, 66, will allow the parts to be removed from the carrying bar, when the others are followed up and another inserted at the end, as above explained. The important feature in this bar is its small dimensions, the distribution of the metal, its ability to expand and move sideways up and down and in the direction of the length or travel at every change of position of the carrying bar, which occurs principally at the ends of the furnace. For this purpose the bar, 19, fits loosely at 64 and 65, over the dovetail 55. It will be observed, that 19 projects a little over 18, on the right-hand side, and that 18 projects beyond 19 on the left-hand side, so that, when two complete bars are together, they overlap and close the joints so that no coal can fall through. By constructing the grate in this way, the only parts exposed to the hot fire are the small sectional bars, 19, on top. The main or carrying bar, 18, is pretty well protected from the intense heat, does not warp or twist, and shows, so far, no sign of giving out; this is very important. The expansion is also taken care of..

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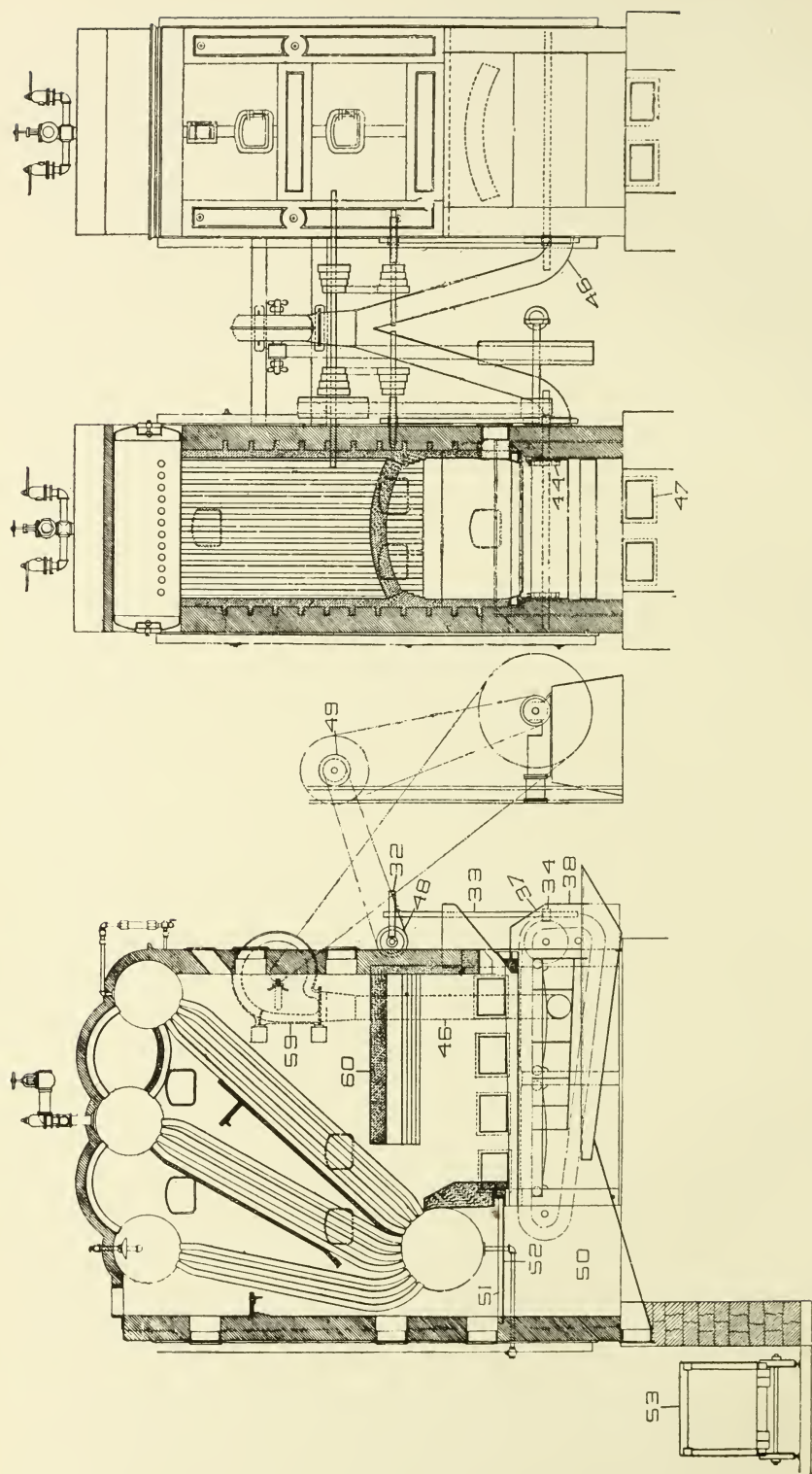


PLATE IV.—Side and transverse elevation of the Stirling boiler plant at No. 3 Colliery, Oneida, Pa.

The result of this arrangement is that if we are blowing into the large air chamber with a pressure say of 1 inch water-gauge, the pressure in the next air chamber to the left would be about $\frac{3}{4}$ inch, the next to that $\frac{1}{2}$ inch, and the next to that $\frac{1}{4}$ inch. Of course these figures are not strictly correct, and are used merely for the purpose of illustrating, as I am now describing only the general principle of the apparatus. The pressure in the air chamber to the right would be say $\frac{1}{4}$ inch. The result of this state of affairs is that the coal when it arrives on the grate is subjected to a pressure of blast sufficient to ignite it, but not too strong to impede ignition.

In order to regulate exactly the pressure of the air in each of the compartments the partitions are provided with registers, by the simple opening and closing of which the pressure in the air chambers can be varied to suit the conditions.

As the thoroughly ignited coal passes slowly over the second compartment (where the air pressure is a minimum, it burns briskly, and then slowly passes over the 3d compartment where the air pressure is less and better suited to the combustion of the thinner layer of partly consumed coal, the bed continues to diminish in carbon, and to be subjected to less blast, until, finally, the hot ashes are cooled off (before being dumped) by a very gentle current of air, which is heated and mingles with the carbonic oxide produced in the zone of intense combustion B and converts it into carbonic acid, the object being to subject the coal as soon as it arrives on the grate to a pressure of blast which is the proper one to ignite it; then burn it with a blast as strong as will produce good combustion, and as the carbon is eliminated and the thickness of the bed becomes smaller to diminish the blast to correspond to these conditions. The mass of coal remains all the time in practically the same position and condition in which it was placed on the grate, except so far as altered by the combustion. It is evident that there would be a tendency of the air to pass out between the brick rest 13 and the top of the grate bars 19, which have no coal on them, and if no provision was made to prevent it the air would pass under the air chamber along the line of travel of the grate and enter the furnace through the ash exit at 17, thus forcing a large excess of air into the space under the boiler and causing a loss in two ways: First, in the power necessary to furnish the air, and, second, in the heat carried off by the surplus of air going out the stack. This is avoided by having the returning line of grate pass into a water pan 36. By means of the partition 39, which passes down below the surface of the water, a water seal is obtained which absolutely cuts off all connection between the front and back ends of the lower portion of the furnace along the line of travel of the grate. The ash-pit, which is practically the part to the left of the plate 39 is closed by a door

out of which the ashes are taken and the front end of the boiler is closed by a sheet-iron casing, which passes down into the water in the water pan, thereby preventing the air from passing out between the brick rest 13 and the grate bars into the free air. There is space enough between the extreme right hand end of the water-pan and the vertical wall of the casing to allow any ashes or dirt that may accumulate in the water-pan to be taken out very easily. This is very clearly shown in Plate VI, where the opening between the bottom of the water pan and the verticle casing is distinctly shown.

From this brief description the continuous action of the furnace can be easily understood. The coal passing continuously down from the ignition brick is ignited gradually, burned out, and the ashes are carried off or dumped by the grate bars as they descend, as can be easily seen on Plate VII.

The coal burns out from the bottom, that is, the first thin layer of complete ash forms on the bottom and gradually becomes thicker until it reaches to the top. At first, the ash is very hot, but the gentle current of air passing through it gradually cools it off, and when it is dumped into the ash-pit it is not very hot. The shaded portion, beginning in C and extending into D, represents the gradual formation of the ash, and the part to the left of that shows the ash practically cooled or cooling.

A certain portion of air from which the oxygen is not removed passes through and cools the ash, but in the first sections of the bed of fuel near A, a certain amount of carbonic oxide is formed, due to the fact that the amount of air blown through is not sufficient to properly consume all the carbon and the incandescent carbon decomposes the carbonic acid, forming carbonic oxide very much as in gas producers. This carbonic oxide is burned in the furnace by the air which has passed through the ash. Our experiments have shown us that if we allow the gases to pass through the furnace with a velocity that will permit the carbonic oxide to burn completely before reaching the parts of the furnace too cool for the combustion to take place, we get a better result, and in one of our plants we have found an increase in efficiency and economy by putting a damper in the stack and checking the flow of gases. Of course, there is a velocity for each furnace above or below which you have less economy and less efficiency, provided you are burning a certain number of pounds of coal per hour.

Having thus briefly described the process, I will now give some details as to the construction of the grate and the method of placing it under the boilers.

One of the first difficulties we encountered in our experiments with the travelling grate, was the fact, that if we had a fire-brick

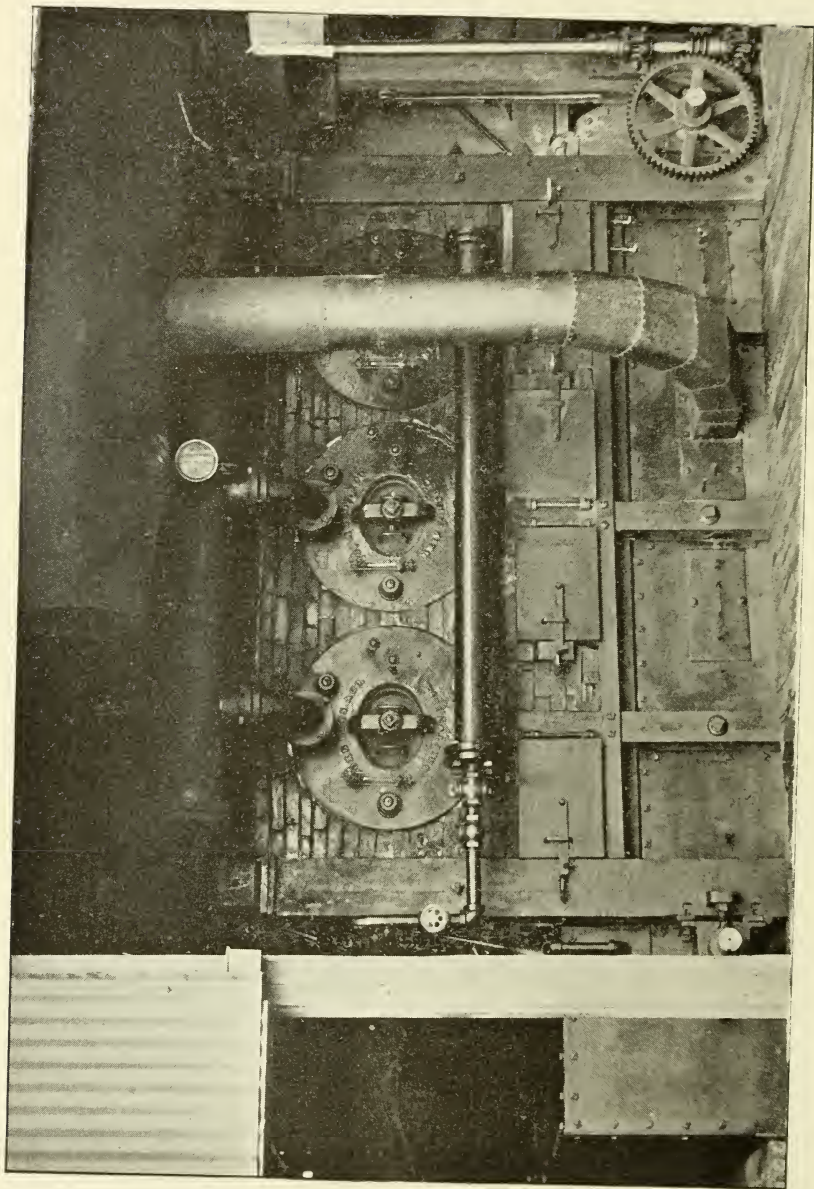


PLATE VIII.—View of the boiler at the No. 6 Slope at Eckley, Pa.

side-wall there would be a tendency to form clinker along it. This clinker would retard the coal that should be carried forward, and have a tendency to break up the fire near the walls and allow the air to escape, giving considerable trouble. This has been avoided by making the sides of a hollow cast-iron bar (called the water-back), No. 15, Plate III. This bar is horizontal on the bottom, but the upper part rises at the rate of $\frac{1}{4}$ inch to the foot toward the front end, which is also the hottest end. The water is fed in at the back end and flows out at the top at the front.

Our experiments with the Stirling boilers show us that if we pass the feed-water which is necessary to supply the boilers through this water-back, on each side, the water leaves the water-back at a temperature of 110 to 120 degrees. This goes directly to the feed-pump, and the heat is all utilized. We also found that the coal had a tendency to burn a little more rapidly along the water-backs, so that the layer of partially consumed coal became thinner there more quickly than in the center, thus allowing a too free passage to the air at that point. This has been avoided in two ways. First, by having no holes in the grate-bar at that point; second, by making the water-back narrower at the top than at the bottom, which gives a larger quantity of coal to be consumed along the water-back, so that, if anything, the tendency is to have the layer of ashes there a little thicker than in the center. It is also important that there should be practically a tight joint between the end of the bar and the side along which it slides. This is accomplished (as shown on Plate III) by having a casting, 5, a portion of which, forming an inclined plane, makes the fixed side. The joint is made by round bars of iron cut in sections about 1 foot long. This bar of iron rests on the inclined plane and rolls against the end of the bar, 18. If one bar, 18, protrudes more than another, it simply pushes this iron bar, 43, back; if it recedes, the iron bar follows it down. If the bars, 43, were all cut off square at their ends, the moving grate-bars, if not exactly of the same length, might catch upon them if one projected a little beyond the other; the bars 43 are, therefore, rounded off at the end, as is shown at 43, Plate II. Since we have adopted this plan we have had no trouble whatever with the leakage of air.

The grate is formed of two parts; the lower, 18, which is T-shaped, consisting of the vertical rib and the horizontal plate. The horizontal plate is perforated with a number of conical-shaped holes, wider at the bottom than at the top, as is shown in the drawing. At each end is a lug, which fits into the chain, 11, also shown in Plate III. There are two holes cast in the bar, and two holes drilled in the alternate or long links of the chain, and by means of two bolts each end of the bar is fastened to the chains. The upper part of the bar, 19,

consists of square plates, which are about $7\frac{1}{2}$ inches square. The holes in these are wider at the top than at the bottom. They are simply placed upon 18, being separated $\frac{1}{4}$ inch from it by three little stops, 55, which makes an air-space about $\frac{1}{4}$ of an inch high between the plates. The holes are so arranged that the lower ones are immediately under the center of the solid parts of 19. In this way it is impossible for the coal, no matter how fine, to roll through, as the natural slope of the coal will not reach the openings in 18. In order to hold them in their places, two clinch-pins, 54, of soft iron are cast into 19. The plates 19 are simply placed in position over 18, and, with a couple of strokes of the hammer, the soft iron clinch-pins are bent, as shown, thus holding the upper part of the bar firmly in its place, and allowing it to be removed easily when necessary. It will be observed, that 19 projects a little over 18 on the left hand side, and that 18 projects beyond 19 on the right-hand side, so that, when two complete bars are together, they overlap and close the joints so that no coal can fall through. By constructing the grate in this way, the only parts exposed to the hot fire are the small square plates, 19, on top. The main or carrying-bar, 18, is pretty well protected from the intense heat, does not warp or twist, and shows, so far, no sign of giving out; this is very important. The expansion is also taken care of.

The construction of the chain 11 is easily understood from Plate III. The two chains pass over three pairs of sprocket-wheels, 44, in Plate II. In order to prevent any sagging or friction, these chains run on a set of rollers, 12, which are carried by two roller-bearers, 7, on top, and the two roller-bearers, 6, on the bottom. The way in which the chains travel is very distinctly seen in Plate 2, Fig. II. The object of the lower sprocket-wheels at the front end is to bring the chain into the water-pan and form the water-seal.

The grate is driven by worm-wheel gearing 31, 32, 33, 34 and 35. Plate II, the velocity of the shaft 9 being about 1 revolution per hour, and that of the grate from $3\frac{1}{2}$ to five feet lineal. The speed of the grate is very slow, and cannot easily be detected by the eye.

Plate II is a photographic reduction of the working-drawing from which the grate at Oneida No. 3 was constructed.

Plate IV shows the plant at Oneida No. 3. It consists of two 150 horse power Stirling boilers of the ordinary type to which this grate has been applied. In this case the fire-brick arch 60, covers almost the whole of the grate, and the gases from the entire grate mingle at the outlet. The result of having this fire-brick arch is to keep up an intense heat over the grate, giving a chance for most of the carbonic oxide to unite with the oxygen of the free air before the gases become cold by contact with the heated surface of the boiler. It appears probable that it will be an advantage to remove the heating

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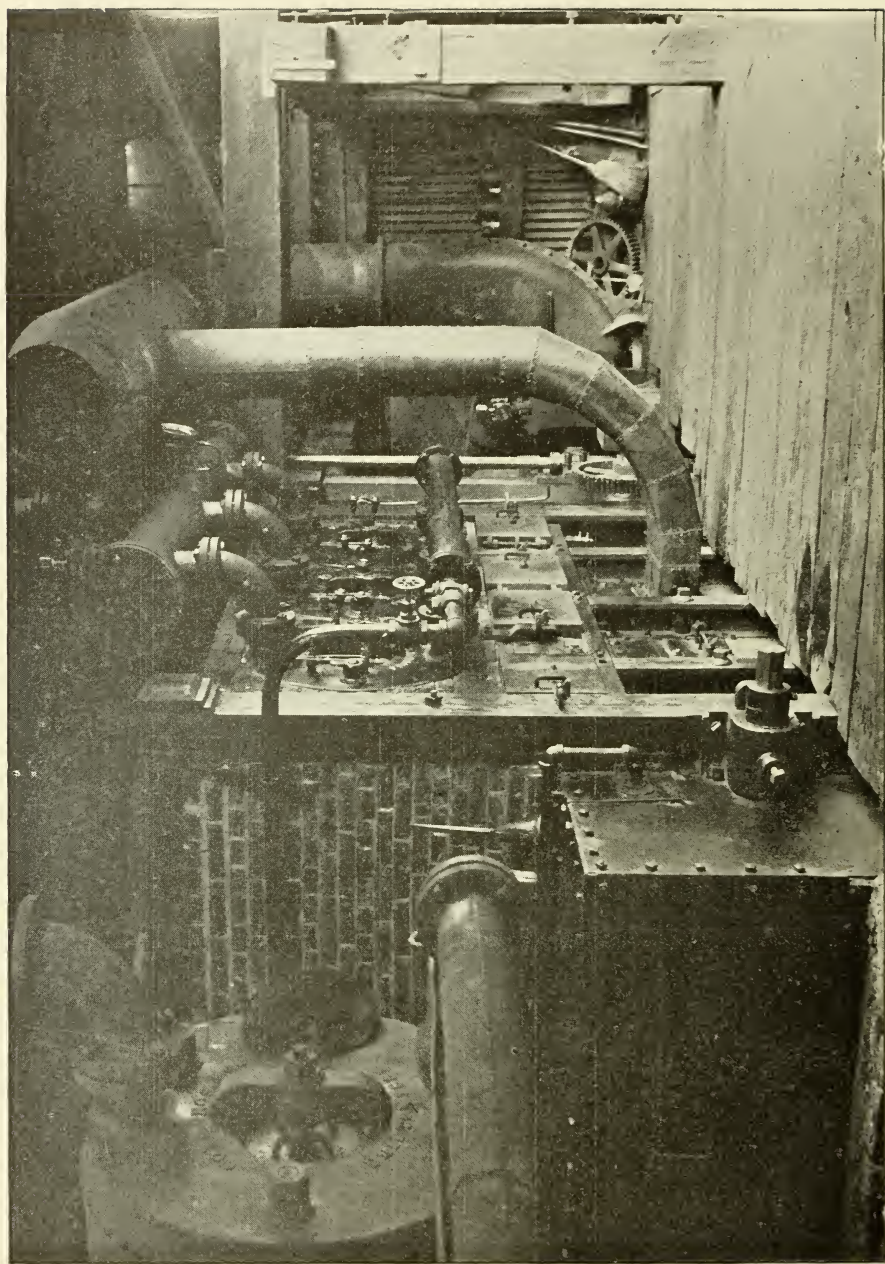


PLATE IX.—View of the boiler at No. 6 Slope at Eckley, Pa.

surface of the boiler from the combustion-chamber, so that the gases will not come in contact with the cooler iron surface until the carbonic oxide has been entirely burned and a thorough mingling of all the gases has taken place. In this case the plant, which will consist eventually of several batteries of boilers, is so arranged that a drag will carry the coal into a coal-hopper in front of each boiler, and that the ashes will drop into an ash-pit, 50, in each battery, from which they will be loaded into a car when the pit is full by simply opening the gate at the end of the pit and scraping them out.

This drawing also shows the method by which the engine drives the fan 59 and the shaft upon which the cone-pullies 49 are situated. These cone-pullies drive the cone-pullies 48 by which the worm-gearing is actuated. They enable us to change the speed of the grate without changing that of the fan, and to change the speed of the fan without changing that of the grate, as the relation between these two speeds varies with the character and size of the coal.

The main shaft of the engine by means of worm-gearing drives the drag that is to carry the coal into the coal-hopper.

The method by which the air is carried from the fan into the middle compartment of each grate is also shown on this plate. In this case the coal is fed in front and the ashes taken out at the back of the boilers.

The plates VIII and IX show the fire-front of an improved set of cylinder-boilers with mud-drums, etc., to which the stoker has been applied. The worm-gearing and air-pipe and also the fire-front are here shown.

In plate IX the fan is shown in the background, and in front, the casing covering the end of the grate where the ashes are dumped. There is a car in the tunnel below, into which the ashes are drawn. The large fan feeds into the large air-pipe, from which the small pipe on Plate VIII branches. There are two other similar nests of boilers adjoining, which are being supplied with similar grates. The large air-pipe is intended to supply the two remaining nests of boilers, as well as the one already in operation.

There will be found at the end of this paper a description of the Plates, in which is given a list of all the parts shown on each plate, each part being designated by a number, which is the same on all.

We have been running successfully the oldest plant about eight months. We have made many improvements, principally in the line of simplification and elimination of unnecessary parts.

Since we erected the Stirling boilers, some six weeks ago, we have been making experiments with them, using different sizes of coal. A table of the results is hereto appended. We do not claim that these results are complete and absolutely accurate. They are correct as far as they could be under the circumstances. We have not as

yet arranged to analyze our stack-gases or determine to our own satisfaction the moisture in our steam. We are engaged in this at present, but we do not wish to give the results until we have verified them by repeated experiments and checked up the calorimeter. The moisture is about 2 per cent. We have, we think, established one fact, and that is that the size of the coal does not materially affect the number of pounds of water evaporated per pound of combustible. It does affect the number of pounds of water evaporated per square foot of heating-surface. As I said before, the temperature at which the smaller coals burn is not as great as that developed by the larger coal, and therefore one square foot of heating-surface will not absorb as much heat when you use small coal as when you use large; but the economy (that is, pounds of water evaporated per pound of coal) appears to be about the same in all cases. Of course, the commercial value at present of No. 3 Buckwheat is very much less than that of pea-coal.

We append herewith a table showing the size of mesh through and over which our pea-coal, Nos. 1, 2, and 3 buckwheats are made.

Size of Coal.	Over a Round Hole.	Through a Round Hole.
Pea coal, ...	9-16 inch diameter, ...	7-8 inch diameter.
No. 1 Buckwheat, ...	3-8 " "	9-16 " "
No. 2 "	3-16 " "	3-8 " "
No. 3 "	3-32 " "	3-16 " "

This paper is not as full and complete as we would wish to make it, but the time at our disposal since we got our boilers in shape has not allowed us to make as full and complete a series of experiments as we would wish; but we think the results already obtained are of sufficient interest to justify us in presenting this paper to the attention of the institute.

We give here the record of the tests made with the plant at Oneida No. 3 and with that at No. 6 Eckley.

(A) In the course of these tests it has been shown to our satisfaction that the best results would probably be obtained by extending the air chambers to as near the dumping-end of the grate as possible, and regulating by the registers the pressure (which may be very slight) in the last air-chamber, so that a small amount of air may pass through the ash as near to the dump as possible. The amount of carbon in the ash can, we think, be diminished materially by attention to this point.

In the new plants now under construction we are extending the air-chambers further towards the dump than we did with those with which the experiments were made. See Plate II, where there is room for two more air-chambers.

Dimensions and Proportions.

(For tests 1, 2, 3 and 4.)

Type of boiler, ...	Stirling Water Tube.
Number, ...	Two.
Drums, ...	4 to each boiler, $\left\{ \begin{array}{l} 1, 42 \text{ inches } \left\{ \begin{array}{l} \text{diam. by } 105\frac{1}{2} \text{ inches long.} \\ 3, 36 \text{ inches } \left\{ \end{array} \right. \end{array} \right.$
Tubes, ...	155 $3\frac{1}{2}$ -inch tubes to each boiler.
Square feet of heating surface, ...	1,725 square feet each.
Horse-power (by builder's rating, 30 lbs. of water from 100° F. to 70 lbs. pressure), ...	150.
Type of grate, ...	Coxe Travelling Grate and Mechanical Stoking Furnace.
Size of grate, ...	6 feet wide by 9 feet 2 inches long.
Grate surface, ...	55 square feet.
Ratio of heating to grate surface, ...	31.4 to 1.
Kind of blast, ...	Fan blower.

Dimensions and Proportions.

(For test 5.)

Type of boiler, ...	Cylinder Boiler of Improved Setting.
Drums, ...	5 $\left\{ \begin{array}{l} 3 \text{ main, } 34 \text{ inches diam. by } 36 \text{ feet long.} \\ 2 \text{ mud drums, } 34 \text{ inches diam. by } 20 \text{ feet } 4 \text{ inches.} \end{array} \right.$
Short connections, ...	4 10 inches diam., 4 14 inches diam.
One cast-iron water tube boiler, in flue, ...	2 $\frac{1}{2}$ inches inside diam.
Heating surface :	
Three main shells, ...	575 square feet.
Two mud drums, ...	393 "
Eight connecting tubes, ...	21 "
One cast-iron water tube boiler, ...	873 "
	1,862
Type of grate, ...	Coxe Travelling Grate.
Size, ...	7 feet 6 inches wide by 9 feet 2 inches long.
Grate surface, ...	68.75
Ratio of heating surface to grate surface, ...	27.1 to 1

Manner of Conducting Tests.

This type of grate is admirably adapted to the purpose of Boiler Tests, as there is no need of starting fire with wood, or cleaning fire at starting or stopping of test; as the fire can be maintained in exactly the same condition throughout the run of a whole week or month.

The hourly records of coal fired and water evaporated show that as close results can be obtained with this grate in a six or eight hour test, as in a twenty-four hour test on hand-fired and hand-cleaned grates.

The tests were started at 8 A. M.; the first of the coal to be tested being delivered into clean feed-hoppers at 4 A. M., to allow the fireman to get the right air-pressure and speed of grate for a given horse-power, so as to have as much of the grate covered with fire and yet as little carbon as possible carried over into the ash-pit. The boilers were run continuously throughout the week, but during the tests the steam consumption at the colliery was only from 50 to 60 per cent. of that generated, the remainder being blown off at some distance from the boilers.

Hourly and half-hourly observations were made.

The water was weighed in a barrel placed on a platform-scale; being fed from the weighing-barrel into an iron tank, 34 inches in diameter, by 12 feet long, set on end into the ground, and projecting 26 inches above floor-level. From this tank the feed-pump was supplied. The feed-pump was run continuously. At the time of starting the test the level of the water in the boilers was arranged so as to produce a flutter at a certain one of the gauge-cocks, and, at the same time, a mark was made on the gauge-glass. This level was readily kept, and at the time of observations the level was checked by both the gauge-cocks and gauge-glasses. At the same time the level in the feed-tank was brought to a certain height indicated by a straight-edge laid across the top of the tank. This straight-edge had a nail pointing down to the water surface. Between observations no heed was taken to the level of water in the feed-tank.

The coal was weighed in a nail-keg, each keg being levelled off with a straight-edge. A sample of coal was taken by taking a handful from every keg before levelling it.

Moisture determinations were made by spreading the coal out on pieces of sheet-iron and drying it in the sun or over the boilers. Several kegsful of coal levelled off were also weighed after being air-dried, from which the weight of dry coal fired was calculated.

Results of Tests of Pea and Buckwheats with Two Types of Boilers and Cove Travelling Grate.

Kinds of Fuel Used.		1. Onelda Pea-Coal.	2. Onelda No. 1 Buckwheat.	3. Onelda No. 2 Buckwheat.	4. Onelda No. 3 Buckwheat.	5. Buckley No. 3 Buckwheat.	
1							
2	Pounds of water evaporated per lb. of dry coal—actual conditions,	7.14	6.62	7.17	7.21	7.36	
3	Pounds of water evaporated per lb. of dry coal—from and at 212° F.,	8.56	7.94	8.60	8.65	8.74	
4	Pounds of water evaporated per lb. of dry coal—combustible from and at 212° F.,	10.14	10.06	10.57	11.12	11.10	
5	Pounds of water evaporated from and at 212° F. per hour,	12.80	11,080	10,800	10,800	5,703	
6	Pounds of water evaporated from and at 212° F. per hour pr. sq. ft. of heating surface,	3.70	3.21	3.13	3.13	3.06	
7	Pounds of coal per square foot of grate per hour,	13.63	13.38	11.40	11.34	9.44	
8	Pounds of coal per square—(2 furnaces) test 5 on furnace,	1,502.62	1,484.66	1,284.31	1,243.68	652.7	
9	Average temperature of escaping gases,	349.4	349.4	404.3	393	372.7	
10	Ratio of heating surface to coal per hour,	2.29	2.31	2.75	2.76	2.85	
11	Ratio of heating surface to combustible per hour,	3.72	3.88	3.35	3.55	3.63	
12	Horse power developed,	372.8	345	312.6	312.8	165	
13	Square feet of heating surface per horse power,	9.25	10.05	11.03	11.03	11.28	
14	Percentage under or overrated capacity,	24.36 pr. ct. over.	14.33 pr. ct. over	4.20 pr. ct. over.	4.26 pr. ct. over.	.....	
15	Moisture in steam,	2.2	2	1.9	1.9	.....	
16	Moisture in coal as fired,	2.63	4.06	8.62	6.53	4.93	
17	Per cent. of ash,	15.60	20.10	18.71	22.27	21.3	
18	Carbon in ash,	15.85	12.35	9.33	31.90	29.63	
19	Pressure, average of steam,	139 lbs.	134 lbs.	133 lbs.	124 lbs.	94 lbs.	
20	Pressure, average blast in inches of water in entrance chamber,	3.8	3.8	3.8	1 1-25,	1 1-16,	
21	Temperature of feed-water, average,	65	67	62	63	68	
22	Temperature of outside air,	70	71	58	62	82	
Analysis of Coal,		Water at 225° F.,		2.10		2.50	
		{ Volatile Combustible matter,		5.45		5.00	
		{ Ash,		12.55		13.97	
		{ Carbon (fixed),		76.95		78.53	
		{ Specific gravity,		1.654		1.642	
Sizing Test,		Chestnut over 3" round mesh,		.98			
		Pea coal between 3 and 9-16", r d mesh,		6.85		1.21	
		No. 1 Buckwheat betw. 9-16 and 3-16", r d mesh,		57.72		2.60	
		No. 2 Buckwheat betw. 3 and 3-16", r d mesh,		28.74		31.94	
		No. 3 Buckwheat betw. 3-16 and 3-32", r d mesh,		2.39		49.56	
		Betw. 3-32 & 1-16" sometimes allowed in No. 3 Buckwht		1.49		6.31	
		{ Dust—through 1-16" mesh (round),		6.10		8.37	
		100.00 per ct.		100.00 per ct.		100.00 per ct.	
Slate Test,		{ Pure coal—Sp. gr. below 1.70,		78.28		83.85	
		{ Slate and bone—Sp. gr. above 1.70,		21.72		16.15	
		100.03		100.00		100.00	

TABLE I.—Showing Location, &c., of Collieries in the Fifth Anthracite District.

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Postoffice Address.
Hazleton mine, ...	A. Pardee & Co., ...	Hazleton, Luzerne, ...	Frank Pardee, ...	Hazleton, Luzerne county, Pa.
Laurel Hill, ...	do.	do.	do.	do.
Hazleton No. 3, ...	do.	Hazle township, Luzerne, ...	do.	do.
Hazleton No. 6, ...	do.	do.	do.	do.
Southern Sugar Loaf, ...	do.	do.	do.	do.
do.	do.	do.	do.	do.
East Crystal Ridge, ...	do.	do.	do.	do.
Driftton No. 1, ...	Coxe Brothers & Co., ...	Driftton, Luzerne, ...	Hon. Eckley B. Coxe, ...	Driftton, Luzerne county, Pa.
Driftton No. 2, ...	do.	do.	do.	do.
Eckley No. 4, ...	do.	Eckley, Luzerne, ...	do.	do.
Eckley No. 10, ...	do.	do.	do.	do.
Stockton, ...	do.	Stockton, Luzerne, ...	do.	do.
Beaver Meadow, ...	do.	Beaver Meadow, Carbon, ...	do.	do.
Tomhicken, ...	do.	Tomhicken, Luzerne, ...	do.	do.
Derringer, ...	do.	Derringer, Luzerne, ...	do.	do.
Gowen, ...	do.	Gowen, Luzerne, ...	do.	do.
Colliery No. 1, ...	do.	Nesquehoning, Carbon, ...	do.	do.
Colliery No. 4, ...	Lehigh Coal and Navigation Company, ...	Summit Hill, Carbon, ...	W. D. Zehmer, ...	Lansford, Carbon county, Pa.
Colliery No. 5, ...	do.	do.	do.	do.
Colliery No. 6, ...	do.	do.	do.	do.
Colliery No. 9, ...	do.	Lansford, Carbon, ...	do.	do.
Jeddo No. 3, ...	G. B. Markle & Co., ...	do.	do.	do.
Jeddo No. 4, ...	do.	Hazle township, Luzerne, ...	John Markle, ...	Jeddo, Luzerne county, Pa.
Highland No. 1, ...	do.	do.	do.	do.
Highland No. 2, ...	do.	Foster township, Luzerne, ...	do.	do.
Highland No. 3, ...	do.	do.	do.	do.
East Sugar No. 1, West No. 1, ...	Linderman & Skeer, ...	Stockton, Luzerne, ...	James E. Roderick, ...	Stockton, Luzerne county, Pa.
East Sugar No. 2, ...	do.	do.	do.	do.
East Sugar Loaf Nos. 4 & 5, ...	do.	do.	do.	do.
East Sugar Loaf No. 6, ...	do.	do.	do.	do.
Humboldt colliery, ...	do.	Humboldt, Luzerne, ...	do.	do.
Upper Lehigh colliery, ...	Upper Lehigh Coal Company, ...	Upper Lehigh, Luzerne, ...	A. C. Leisenring, ...	Upper Lehigh, Luzerne county, Pa.
Spring Mountain No. 1, ...	J. C. Haydon & Co., ...	Jeanesville, Carbon, ...	J. C. Haydon, general superintendent, ...	Jeanesville, Luzerne county, Pa.
Spring Mountain No. 4, ...	do.	Jeanesville, Luzerne, ...	David MacFarlane, acting superintendent, ...	do.
Lattimer No. 1, ...	Pardee Brothers & Co., ...	Lattimer, Luzerne, ...	Calvin Pardee, general superintendent, ...	322 Drexel Building, Philadelphia, Pa.
Lattimer No. 3, ...	do.	do.	A. W. Drake, assisting superintendent, ...	Lattimer Mines P. O., Luzerne county, Pa.
Harwood colliery, ...	Pardee Sons & Co., ...	Harwood, Luzerne, ...	Calvin Pardee, general superintendent, ...	305 Drexel Building, Philadelphia, Pa.
			A. W. Drake, assistant superintendent, ...	Lattimer Mines P. O., Luzerne county, Pa.

Hollywood colliery, ...	Calvin Pardee & Co., ...	Hollywood, Luzerne, . . .	Calvin Pardee, general superintendent, ...	Room 302 Drexel Building, Philadelphia, Pa.
Milnesville colliery, ...	A. S. Van Wickle, ...	Milnesville, Luzerne, . . .	A. W. Drake, assistant superintendent, ...	Lattimer Mines P. O., Luzerne county, Pa.
Coleraine colliery, ...	do.	Coleraine, Carbon, ...	D. H. Levan, ...	Milnesville, Luzerne county, Pa.
Beaver Brook colliery, ...	C. M. Dodson & Co., ...	Hazle township, Luzerne, .	E. L. Bullock, ...	Beaver Meadow, Carbon co., Pa.
Sandy Run colliery, ...	M. S. Kemmerer & Co., ...	Sandy Run, Luzerne, . . .	Walter Leisenring, ...	Audenried, Carbon county, Pa.
Honey Brook No. 2, ...	Lehigh & Wilkes-Barre Coal Company, ...	Trescow, Carbon, ...	Elmer H. Lawall, general superintendent, ...	Wilkes-Barre, Luzerne co., Pa.
Spring Brook colliery, ...	Lehigh Valley Coal Company, ...	Yorktown, Carbon, ...	David R. Roberts, assistant superintendent, ...	Audenried, Carbon county, Pa.
Hazle Brook colliery, ...	John S. Wentz & Co., ...	Hazle Brook, Luzerne, . . .	W. A. Lathrop, general superintendent, ...	Wilkes-Barre, Luzerne county, Pa.
Evans colliery, ...	The Evans Mining Company, ...	Beaver Meadow, Carbon, . .	Col. D. P. Brown, division superintendent, ...	Audenried, Carbon county, Pa.
			George Ritchert, ...	Hazle Brook, Luzerne county, Pa.
			Thomas J. Evans, ...	Beaver Meadow, Carbon co., Pa.

<i>Lehigh Coal and Navigation Company.</i>		Lansford, Hanto,	Carbon, do.	236,304.13	267,473.12	249.5 555.0	392 211	1 2	180	11 4	60 274	3 16	5,100 40,141
Colliery No. 9, ...	Screen building, ...												
Totals, ...				830,242.15	854,002.13		2,063	8	2				
<i>G. B. Markle & Co.</i>		Hazle twp., do.	Luzerne, do.	95,204.17	73,854.17	221	225	1	5				17,189
Jeddo No. 3, ...				24,882.09	30,000.00	105	197	2	2				6,848
Jeddo No. 4, ...				24,882.09	30,000.00	180	194	1	2				3,524
Highland No. 1, ...				88,575.19	77,736.19	192	269	3	4				2,576
Highland No. 2, ...				153,962.04	152,662.04	224	350	1	4				247
Highland No. 5, ...													
Totals, ...				471,746.14	400,371.14	190.6	1,265	5	15				30,484
<i>Linderman & Sheer.</i>		Stockton, do.	Luzerne, do.	471,357.02	373,737.02	211.0	814	1	5				39,212
East Sugar Loaf No. 1, ...													
East Sugar Loaf No. 2, ...													
East Sugar Loaf No. 6, ...													
East Sugar Loaf Nos. 4 and 5, ...													
Humboldt colliery, ...				17,259.17	12,259.17	*	341	1	1				
Totals, ...				488,616.19	385,996.19	206.3	1,155	5	13				39,212
<i>Upper Lehigh Coal Company.</i>		Upper Lehigh, do.		350,460.03	305,585.03	274.6	688		4				
Spring Mountain No. 1, ...				136,658.12	119,639.12	216	404		4				83,800
Spring Mountain No. 4, ...				147,703.12	134,650.12	221	453	1	3				41,900
Totals, ...				284,362.04	254,290.04	219.8	857	1	7				125,700
<i>Pardee Brothers & Co.</i>		Latimer, do.	Luzerne, do.	174,082.14	141,163.18	248.6	724	2	6				145,150
Latimer No. 1, ...				180,839.11	161,838.11	230.1	732	5	4				145,150
Latimer No. 3, ...				354,922.05	303,027.09	249.3	1,446	7	10				145,150
Totals, ...													
<i>Pardee Sons & Co.</i>		Harwood, do.	Luzerne, do.	226,613.17	184,728.14	264	822	1	5				14,650
Harwood colliery, ...													
<i>Calvin Pardee & Co.</i>		Hollywood, do.	Luzerne, do.	134,887.15	111,089.15	251	378	2	1				30,850
Hollywood colliery, ...													
<i>A. S. Van Wickle.</i>		Milnesville, do.	Luzerne, do.	368,781.09	332,231.09	284	1,006	8					100,738
Coleraine colliery, ...				29,792.00	24,908.00	219.8	365		1				2,250
W. T. Carter & Co. Coleraine, ...				56,976.00	67,170.00								
<i>C. M. Dodson & Co.</i>		Beaver Brook, do.	Luzerne, do.	214,328.00	188,494.00	237.2	512	1	3				970
Beaver Brook colliery, ...													

*Worked but a few days. Abandoned May 22, 1893.

TABLE NO. 2—Continued.

Names of Collieries.	Location—County.	Total production in tons of coal.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.	Number mine locomotives.	Number pounds dynamite used.
<i>M. S. Kemmerer & Co.</i>												
Sandy Run colliery, ...	Sandy Run, Luzerne, .	215,307.17	201,307.17	267.0	481	1	4	2,608	31	60	3	13,350
<i>Lehigh and Wilkes-Barre Coal Company.</i>												
Honey Brook No. 2, ...	Trescow, Carbon, . . .	129,492.02	128,550.14	263.9	685	. . .	3	1,462	48	28	2	7,256
<i>Lehigh Valley Coal Company.</i>												
Spring Brook colliery, ...	Yorktown, do.	128,668.03	111,740.13	191.4	366	1	1	2,763	51	31	2	3,336
<i>John S. Wentz & Co.</i>												
Hazle Brook colliery, ...	Hazle Brook, Luzerne, .	92,930.16	83,861.16	206.5	288	2	3	2,673	18	21	1	2,150
<i>Evans Mining Company.</i>												
Evans colliery, ...	Beaver Meadow, Carb., .	53,362.14	50,362.14	237.0	182	. . .	. . .	1,600	6	10	. . .	8,150
Grand total for all collieries, ...		6,239,068.10	5,591,633.06	239.9	17,540	58	99	106,224	1,373	1,929	93	680,450

TABLE NO. 3.—Showing the number of each class of employes at each colliery in the Fifth Anthracite Mine District during the year 1893.

Names of Collieries.	Occupations of Persons Employed Inside.							Occupations of Persons Employed Outside.							
	Inside foremen.	Miners.	Miners' laborers.	All company men.	Drivers and runners.	Door boys and helpers.	Total inside.	Outside foremen.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	All other company men.	Superintendent, book-keepers and clerks.	Total outside.	Grand total inside and outside.
<i>A. Pardee & Co.</i>															
Hazleton mine.	4	143	95	37	43	5	327	1	6	21	132	75	258	585	
Laurel Hill.	2	47	41	23	15	2	133	1	9	20	81	47	139	292	
South Sugar Loaf.	1	66	14	8	16	3	107	1	2	11	72	20	107	214	
Hazleton No. 3.	2	38	69	13	8	1	133	1	2	11	43	46	1	104	237
Hazleton No. 6.	1	5	24	4	7	1	42	1	1	5	15	16	3	36	78
Cranberry colliery.	1	195	116	43	40	6	405	1	2	24	107	105	248	633	
East Crystal Ridge.	5	32	1	1	1	1	38	1	2	8	13	5	29	67	
Totals.	16	499	391	128	129	22	1,185	6	29	100	481	316	941	2,126	
<i>Coar Brothers & Co.</i>															
Drifton Nos. 1 and 2.	7	226	21	103	42	25	434	4	19	29	141	90	289	723	
Eckley, Nos. 5 and 10.	6	85	43	72	24	4	234	3	24	17	134	53	232	466	
Stockton.	4	80	13	48	16	9	170	3	12	15	119	99	249	419	
Beaver Meadow.	4	70	23	48	15	6	166	3	10	16	124	85	239	405	
Tombs.	2	74	19	17	9	3	124	2	8	10	58	29	1	108	232
Derringer and Gowen.	5	214	58	100	32	16	425	3	19	13	141	68	1	245	670
Totals.	28	759	177	388	138	63	1,553	18	92	100	717	424	11	1,362	2,915
<i>Lehigh Coal and Navigation Company.</i>															
Colliery No. 1.	9	179	63	93	33	22	399	1	3	29	88	139	1	265	664
Colliery No. 4.	3	43	15	59	24	6	180	1	3	16	73	52	1	145	325
Colliery No. 5.	3	27	12	53	11	2	108	1	4	14	60	53	1	132	240
Colliery No. 6.	3	46	38	27	11	4	129	1	6	12	23	23	1	42	171
Colliery No. 9.	2	65	43	100	14	6	230	1	5	14	74	68	1	362	362
Screen building.	1	1	1	1	1	1	5	1	3	12	104	91	1	211	211
Totals.	20	340	171	362	93	40	1,046	6	29	97	399	425	1	957	2,003

Jeddo No. 3,	1	35	5	22	16	5	84	1	7	19	43	66	5	141	225
Jeddo No. 4,	1	15	4	51	22	9	102	38	4	17	38	30	4	95	194
Highland No. 1,	1	36	24	11	16	5	93	1	5	12	42	37	4	101	359
Highland No. 2,	1	68	48	17	14	9	157	1	5	19	65	4	4	142	299
Highland No. 5,	1	75	72	9	19	14	190	1	5	10	95	45	4	160	350
Totals,	5	229	153	110	87	42	626	5	27	77	266	243	21	689	1,265
Linderman & Sheer,															
East Sugar Loaf No. 1,	. . .	39	9	30	6	2	86	1	2	6	. . .	17	. . .	26	112
East Sugar Loaf No. 2,	1	118	29	123	20	3	294	1	2	19	137	105	4	269	563
East Sugar Loaf No. 6,	1	45	25	10	1	1	109	1	2	11	. . .	30	3	139	341
East Sugar Loaf Nos. 4 and 5,	1	97	37	52	16	4	201	1	3	11	43	16	2	134	341
Totals,	3	299	100	280	52	12	696	4	10	47	180	212	6	459	1,155
Upper Lehigh Coal Company.															
Upper Lehigh colliery,	4	136	173	37	52	8	410	3	14	38	112	105	6	278	688
J. C. Hayden & Co.,															
Spring Mountain No. 1,	2	39	43	16	25	3	128	7	5	15	52	194	3	276	404
Spring Mountain No. 4,	2	59	58	10	25	5	159	7	8	22	62	193	2	294	453
Totals,	4	98	101	26	50	8	287	14	13	37	114	387	5	570	857
Pardee Brothers & Co.,															
Latimer No. 1,	2	13	. . .	144	10	3	172	2	21	12	180	354	3	552	734
Latimer No. 3,	2	11	. . .	138	12	2	165	2	17	11	185	389	3	557	722
Totals,	4	24	. . .	282	22	5	337	4	38	23	365	673	6	1,109	1,446
Pardee, Sons & Co.,															
Harwood colliery,	4	225	140	31	37	20	457	1	17	16	212	112	7	365	892
Cabrin, Pardee & Co.,															
Hollywood colliery,	3	20	. . .	71	13	. . .	107	2	14	12	125	115	3	271	378
A. S. Van Winkle,															
Minesville colliery,	1	18	23	18	13	. . .	73	18	40	27	80	758	10	933	1,006
Wm. T. Carter & Co., now A. S. Van Winkle,															
Coleraine colliery,	4	49	95	37	24	4	213	3	4	14	53	75	3	152	365
C. M. Dodson & Co.,															
Beaver Brook colliery,	2	78	80	22	15	9	206	2	10	29	100	158	7	306	512
M. S. Kemmerer & Co.,															
Sandy Run colliery,	3	93	112	25	23	11	267	3	6	23	80	99	3	214	481
Lehigh and Wilkes-Barre Coal Company.															
Koney Brook No. 2 colliery,	2	29	25	393	8	. . .	457	1	7	26	54	129	1	228	685

TABLE NO. 3.—Continued.

Names of Collieries.	Occupations of Persons Employed Inside.						Occupations of Persons Employed Outside.						(Grand total) Inside and outside.		
	Inside foremen.	Miners.	Miners' laborers.	All company men.	Drivers and runners.	Door boys and helpers.	Total Inside.	Outside foremen.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	All other company men.		Superintendents, bookkeepers and clerks.	Total outside.
<i>Lehigh Valley Coal Company.</i>															
Spring Brook colliery, ...	1	70	80	19	12	. . .	182	1	15	24	59	83	2	184	366
<i>John S. Wentz & Co.</i>															
Hazle Brook colliery, ...	1	85	10	22	17	5	140	2	5	11	95	30	5	148	288
<i>Evans Mining Company.</i>															
Evans colliery, ...	1	56	41	10	9	2	119	1	6	5	18	30	3	63	182
Grand total for all companies, ...	106	3,127	1,872	2,211	794	251	8,361	94	376	706	3,520	4,374	109	9,179	17,540

Recapitulation of Table No. 3.

A. Pardee & Co., ...	16	499	391	128	129	22	1,185	6	29	100	481	316	9	941	2,126
Coze Brothers & Co., ...	28	759	177	388	138	63	1,553	18	92	100	717	424	11	1,362	2,915
Lehigh Coal and Navigation Company, ...	5	360	171	362	93	40	1,046	6	29	97	389	345	21	487	1,065
G. B. Markle & Co., ...	3	229	153	110	87	42	626	5	27	77	266	243	6	439	1,155
Linderman & Skeer, ...	3	239	100	230	52	12	696	3	10	88	179	102	6	278	689
Upper Lehigh Coal Company, ...	4	136	113	27	42	8	287	14	13	33	114	387	5	570	857
P. C. Haydon & Co., ...	4	21	101	26	37	5	337	4	38	23	365	693	6	1,109	1,446
Pardee Brothers & Co., ...	4	225	140	71	32	20	457	1	17	16	212	112	3	365	822
Pardee, Potts & Co., ...	3	18	25	13	13	. . .	107	2	14	12	125	115	3	271	378
A. S. Van Winkle, ...	1	23	18	18	13	. . .	73	18	40	27	80	758	10	933	1,005
Wm. T. Carter & Co., ...	4	49	95	37	4	4	213	3	4	14	53	75	3	152	365

C. M. Dodson & Co., ...	2	78	80	22	15	9	206	2	10	29	100	158	7	306	512
M. S. Kemmerer & Co., ...	3	93	112	25	23	11	237	3	6	23	80	99	3	214	481
Lehigh and Wilkes-Barre Coal Company, ...	2	29	25	383	8	. . .	457	1	7	26	64	129	1	228	685
Lehigh Valley Coal Company, ...	1	70	80	19	12	. . .	182	1	15	24	59	83	2	184	396
John S. Wenz & Co., ...	1	85	10	22	17	5	140	2	5	11	96	30	5	148	288
Kyau Mining Company, ...	1	56	41	10	9	2	119	1	6	5	18	30	3	63	182
Grand totals for all companies, ...	106	3,127	1,872	2,211	794	251	8,361	94	376	706	3,520	4,374	109	9,179	17,540

TABLE NO. 4.—List of fatal accidents which occurred in the mines of the Fifth Anthracite District for the year ending December 31, 1893.

Date of accident.	No. of accident.	Name of Person.	Occupation.	Age.	Widows.	No. of orphans.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 14,	1	John Reshko, ...	Outside laborer,	30	1	2	East Sugar Loaf No. 5,	Stockton, Luzerne,	Killed instantly; his head was crushed between the side of a freight car and a truck on the way of which he stepped out from the car.
23,	2	John Drakanovsky, .	Loader, ...	16	..	..	Sandy Run breaker, . . .	Sandy Run, Luzerne,	Fatally injured; slipped from the front end of a gondola under the breaker and was crushed under the wheels; died from injuries the next day.
24,	3	Laslo Nemed, ...	Laborer, ...	24	..	..	Beaver Brook, ...	Hazle township, Luzerne,	Fatally crushed by fall of rock in breast; died of his injuries at State hospital the next day.
25,	4	Patrick Fitzpatrick, .	Outside laborer,	60	..	..	Spring Mountain No. 4, .	Jeanesville, Luzerne,	Leg fractured and otherwise injured by railroad cars under the breaker while crossing to his work; died same night.
27,	5	Michael Verishock, .	Laborer, ...	22	..	..	Spring Brook colliery, . . .	Yorktown, Carbon,	Spine and one limb fractured; while helping miner to bar down coal it fell on him; died at hospital of injuries Feb. 27, 1893.
Feb. 3,	6	Charles Shafter, ...	Patcher, ...	16	..	..	Gowen No. 4 Derringer, .	Derringer, Luzerne,	Head squeezed between hind end of loaded car and leg of cross-timber; through car being derailed at latches; died of his injuries same night.
3,	7	John Sachs, ...	Outside laborer,	21	..	..	Milnesville No. 3 slope,	Milnesville, Luzerne,	Killed; head crushed between bumpers of loaded and striking-cars, which he tried to couple while they were moving.
11,	8	Frederick Duraw, . . .	do.	60	1	2	Cranberry colliery, . . .	Hazle township, Luzerne,	Killed; crushed under truck-load of pipe on which he was riding which through derailing of truck fell on him.
13,	9	Daniel Crommerford,	Driver, ...	18	..	..	Hazle Brook, ...	Hazle Brook, Luzerne,	Fatally injured; head squeezed between mine car and roof of gangway; died of his injuries February 15th.
13,	10	James Dugan, ...	Miner, ...	45	1	7	Highland No. 2, ...	Foster township, Luzerne,	Killed; shot by a premature blast in face of gangway, which exploded immediately when he touched the squib.
23,	11	Michael Daugherty, .	do.	35	..	4	Milnesville No. 4 slope, .	Milnesville, Luzerne,	Killed; struck by two runaway cars at the foot of slope; he was in a stumpy where dynamite was thawed.
25,	12	Cyrus Winters, ...	Road foreman, .	36	1	3	Milnesville colliery, . . .	do.	Leg was crushed and lacerated between ear and locomotive at the foot of plane to breaker; died of shock one-half hour after accident.

28,	13	George Schwartz, . .	Outside laborer,	61	1	1	Hollywood stripping, . .	Hollywood, Luzerne, . . .	Fatally injured: struck by flying coal from a blast on the stripping; died of injuries same day.
Mar. 14,	14	Dominick Doliso, . .	Laborer, ...	30	1	1	Lattimer slope No. 3, . .	Lattimer, Luzerne, ...	Right leg and foot injured by fall of slate, under which he went while miner was barring at it and warned him to stay out; died of his injuries at hospital March 21st.
17,	15	Joseph Guldos, ...	Miner, ...	24	1	1	East Sugar Loaf No. 6, . .	Stockton, Luzerne, ...	These two men were killed by falling down midway of Primrose vein breast, next to their own, and down which they were, found by the fire boss, the vein was a very close one.
17,	16	Joseph Yonkofski, . .	do.	33	1	1			These two men were killed by falling down midway of Primrose vein breast, next to their own, and down which they were, found by the fire boss, the vein was a very close one.
21,	17	Frank Yamblesky, . .	Slate picker, ...	13	1	1	Jeddo, No. 3 breaker, . .	Hazle township, Luzerne, . .	Leg crushed in cor-wheels of monkey rolls, the cover to which he removed in some way; died at hospital next day.
23,	18	John Cushman, ...	Miner, ...	46	1	4	Harwood, No. 2 slope, . .	Harwood, Luzerne, ...	Killed; crushed by a fall of top coal while shoveling coal from under it; vein 3 feet 11 inches high, pitch 12°.
27,	19	John McGlynn, ...	Pump runner, ...	18	1	1	East Crystal Ridge, . . .	Hazle township, Luzerne, . .	Killed; fell down slope in attempting to climb down to his pump and slipped.
30,	20	Daniel Ballie, ...	Roll feeder, ...	48	1	4	Hazle Brook, ...	Hazle Brook, Luzerne, . . .	Instantly killed; stepped on plank covering rolls and it turned and fell with him into the rolls.
April 3,	21	Richard Williams, . . .	Miner, ...	44	1	3	Laurel Hill, ...	Hazleton, Luzerne, ...	These three men were victims of the "Laurel Hill disaster." Trembath and Hodgson's breast struck into an old proving hole from No. 3 slope, and the water lying therein washed face of vein Hill, taking out the side of the face of vein. The men were killed and carried the three men down the breast, burying them under the coal and rock.
5,	24	Fred Jenkins, ...	do.	33	1	1	No. 1 colliery, ...	Nesquehoning, Carbon, . .	Leg fractured and head cut by flying coal from a blast to which he returned just as it exploded; he died April 14th.
15,	25	Adam Litz, ...	Laborer, ...	26	1	1	Drifton No. 2, ...	Drifton, Luzerne, ...	Killed; crushed by a fall of extra rock in face of gangway, caused by hidden slip in rock.
18	26	John Kress, ...	Timber man, ...	34	1	3	Hazleton mine, ...	Hazleton, Luzerne, ...	Killed; ran over on slope by car which the men he had charge of were using; was asleep on track.
May 4,	27	Edward Deblug, ...	Driver, ...	17	1	1	No. 1 colliery, ...	Nesquehoning, Carbon, . .	Killed by an explosion of C. H. 4 gas in an old traveling way, the use of which had been forbidden.
10,	28	Anthony Raggi, ...	Outside laborer, ...	23	1	1	Lattimer strippings, . . .	Lattimer, Luzerne, ...	Killed; top of old breast caved in under steam shovel; he fell down into breast and was buried under fall the head by a piece of old breast.
25,	29	Veto Scavon, ...	do.	34	1	1	do.	do.	Fatally injured; struck on the head by a piece of old breast, side of stripping; died of injuries same night.
25,	30	Fred Kuoll, ...	Miner, ...	24	1	1	Highland No. 2, ...	Foster township, Luzerne, . .	Fatally injured; struck in the back by flying coal from blast to which he returned; too soon, as it exploded after his return; died of injuries at hospital May 28th.

TABLE NO. 4—Continued.

Date of accident.	No. of accident.	Name of Person.	Occupation.	Age.	Widows.	No. of orphans.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
June 3	31	Mijilo Nicole, ...	Driller, ...	35	1	3	Milnesville stripping, . .	Milnesville, Luzerne, . . .	Killed: shot by a blast which he requested the miner to let him touch off, and which after lighting he stood watching till it exploded, despite the warnings of men to seek safety.
5,	32	William Marley, ...	Miner, ...	58	1	..	Highland No. 5, ...	Foster township, Luzerne,	Killed: shot by blast in face of his airway, lit by himself, perhaps unwittingly, as he gave no warning to any of the men working around and very near him.
14,	33	John Yomites, ...	Rock miner, ...	24	..	..	No. 6 colliery, Rock tunnel in shaft.	Lansford, Carbon, ...	Killed: struck by rock flying from first blast while trying to light fuse of second blast in tunnel.
30,	34	Michael Leist, ...	Pump runner, ...	22	..	..	Laurel Hill, Man slope, .	Hazleton, Luzerne, ...	Killed instantly: ran over by man-car on slope while trying to get off of the moving car.
July 10,	35	James Kennedy, ...	Miner, ...	32	..	..	East Sugar Loaf, West, No. 1.	Stockton, Luzerne, ...	Killed: while trimming after shot in face of breast, clod fell on him and smothered him in loose coal.
14,	36	Angelo Christian, ...	Outside laborer, . .	24	1	..	Lattimer strippings, ...	Lattimer, Luzerne, ...	Fatally injured: squeezed between a plank he was carrying out of stripping and one of plank which was being used to support of plank.
18,	37	Paul Slezock, ...	do.	32	1	1	Milnesville stripping, . .	Milnesville, Luzerne, . . .	Killed: struck by coal falling from side of large pillar, when springing charge was fired in a bore-hole in pillar and he was warned to seek safety.
20,	38	Michael Cuberts, ...	Laborer, ...	42	1	2	Hollywood stripping, . .	Hollywood, Luzerne, . . .	Killed by slate from top of parlor bench of coal sliding down and crushing him against the car, he went back to work before miner examined after firing blast.
25,	39	John Broda, ...	Miner, ...	36	1	3	Stockton colliery, ...	Hazle township, Luzerne, .	Fatally injured: struck by top coal from coal, had fired a shot in both the night before when going home; died same night.
Aug. 3,	40	John Oshek, ...	Laborer, ...	27	1	..	No. 9 colliery, Tunnel No. 3.	Lansford, Carbon, ...	Killed: smothered by a rush of fine coal in shine down which he was carried on sheet iron after starting the coal while his partner at the work was away.
10,	41	John Koke, ...	Outside laborer, . . .	24	..	..	Stockton strippings, ...	Hazle township, Luzerne, .	Killed: struck by falling clay which he underran a truck he directed to couple it with a truck, and a boulder encased in it rolled over him.

21,	42	John Furey, ...	Slate picker, . .	14		Screen building, ...	Hanto, Carbon, ...	Leg badly crushed by falling into a screen while in motion; died of hemorrhage next day.
Sept. 6,	43	John Cupco, ...	Outside laborer, . .	22		Milnesville breaker, ...	Milnesville, Luzerne, ...	Killed; through the breaking down of an old settling tank off of which he was shovelling slate, the slate shute was broken and he was covered with slate and smothered.
6,	44	James Hillhouse, . .	Pump runner, . .	16		Cranberry colliery, ...	Hazle township, Luzerne, ...	Leg badly mangled and otherwise injured by falling under mine cars while riding home from work; died at hospital next morning after leg had been operated on.
10,	45	Samuel Simmons, . .	Outside foreman, . .	38	1	5	Milnesville colliery, ...	Leg crushed between boiler of locomotive and engine at Hazle township, Luzerne, in moving to shore; died from injuries at the hospital after amputation of leg same day.
22,	46	Michael Andrashko, . .	Driver, ...	20		Stockton colliery, ...	Hazle township, Luzerne, ...	Killed instantly; struck by runaway trip of cars from top of slope while sitting on bumper of loaded car at bottom.
22,	47	John Soda, ...	Laborer, ...	24	1	1	Lattimer No. 3, ...	Instantly killed; struck by a piece of top coal from roof which hit him on the head, fracturing his skull.
30,	48	Milton Weachter, . .	do.	36	1	6	East Sugar Loaf No. 6, ...	Fatally injured; struck by a piece of coal which he knocked off side of gangway while turning a collar end for end on top of the car at face of gangway where he worked.
Oct. 20,	49	Joseph Shofranko, . .	Patcher, ...	18		Drifton No. 2 slope, ...	Drifton, Luzerne, ...	Killed; crushed by a fall of top coal on gangway while blocking car in front of breast.
Nov. 6,	50	David Jenkins, ...	Charge-man, . .	45	1	3	{ Colliery No. 6, Rock tunnel in shaft,	Killed; by Jenkins' orders one of the laborers got the battery and prepared to fire and was killed by a shot from M. Laughlin would retire to a crop hole near face, the laborer called three times and receiving an answer to fire, did so, and both men were killed.
6,	51	Patrick McLaughlin, . .	Rock-miner, . .	35	1	2		
7,	52	George Kish, ...	Laborer, ...	25		Highland No. 2, ...	Foster township, Luzerne, ...	Fatally injured; struck by top coal which fell while he was cleaning out drill hole, while miner went for powder; died at hospital same day.
14,	53	Michael Durst, ...	Outside laborer, . .	35	1	1	Lattimer strippings, ...	Fatally injured; shot by a premature rock blast as he was trying to light the fuse of another hole; died of his injuries at hospital, November 16th.
16,	54	Frank Michael, ...	Laborer, ...	21		Cranberry, ...	Hazle township, Luzerne, ...	Fatally injured internally; top slate fell on him while he and the miner were standing prop under it; died November 17th.
22,	55	Edward McLaughlin, . .	Slate Picker, . .	13		Stockton colliery, ...	do.	Both legs fractured and internal injuries; fell into scrapers of stove coal jig while chasing another boy about; died at hospital same night.
23,	56	Michael Hoda, ...	Loader, ...	20		Screen building, ...	Hanto, Carbon, ...	Fatally injured; head squeezed between top of gondola car and breaker shute; died six hours after accident.

TABLE NO. 4—Continued.

Date of accident.	No. of accident.	Name of Person.	Occupation.	Age.	Widows.	No. of orphans.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Nov. 24.	57	Andrew Korhut, . . .	Laborer, ...	28	1	2	Gowen No. 4 slope, Derringer colliery.	Derringer, Luzerne, ...	Killed; top coal fell on him by his going under it while miner was at face barring after a blast; he was warned and was going from under when it fell.
Dec. 30.	58	Louis Partoonaise, . .	Outside laborer, . .	45	1	2	Lattimer strippings, . . .	Lattimer, Luzerne, ...	Fatally injured; struck on left temple by a small piece of slate from blast while hiding under rock bridge from it; died from concussion of brain same night.

Total mine fatalities, 58; widows, 29; orphans under 16 years of age, 63.

Fatal Accidents in Jeddo Tunnel under C. F. King & Co.

Feb. 6,	1	George Hritz, ...	Laborer, ...	28	1	1	Slope B.	Lattimer, Luzerne, ...	These two men were killed by car on slope; car left track and stopped, but weight of rope ran slack off drum, and when the men lifted car on track it ran away on slope and they, clinging to it, were thrown under and crushed to death.
6,	2	Stephen Kosa, ...	do.	34	1	3	do.	do.	

Jeddo tunnel fatalities, 2; widows, 2; orphans under 16 years of age, 4. There was one fatal accident on strippings this year under contractors.

Recapitulation of Mine Fatalities in Table No. 4.

Occupation.	Number killed.	Per cent.	Nationality.	Number killed.	Per cent.	Cause of Fatalities.	Number killed.	Per cent.
Chargemen, ...	1	1.7	Hungarian, ...	17	29.3	By explosions of gas, C. H ₄ , ...	1	1.7
Miners, ...	11	19.0	American, ...	11	19.0	By falls of coal roof and sides, ...	14	24.1
Timbermen, ...	1	1.7	Italian, ...	8	13.8	By falls of coal and clay on strippings, ...	4	6.9
Mine laborers, ...	14	24.1	Polish, ...	7	12.1	By mine cars, ...	6	10.4
Pump runners, ...	3	5.2	Irish, ...	6	10.3	By cars on surface, ...	9	15.5
Drivers, ...	3	5.2	Welsh, ...	3	5.2	By machinery, ...	4	6.9
Privers or helpers, ...	2	3.4	German, ...	3	5.2	By blasts and powder explosions, ...	11	19.0
Outside foremen, ...	2	3.4	English, ...	2	3.4	By miscellaneous causes, ...	9	15.5
Drillers, ...	1	1.7	Russian, ...	1	1.7			
Laborers, outside, ...	16	27.6						
Roll-feeders, ...	1	1.7	Total, ...	58	100.0	Total fatalities, ...	58	100.0
Slate pickers, ...	3	5.2						
Total fatalities, ...	58	100.0						

Widows, 29; orphans, 68.

TABLE No. 5.—List of non-fatal accidents which occurred in the Mines of the Fifth Anthracite District for the year ending December 31, 1893.

Date of accident.	Number of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 19,	1	Harry Winters, . . .	Outside driver, . .	19	S.	Milnesville slope No. 4, . .	Milnesville, Luzerne, . .	Shoulder-blade fractured and back injured by falling under a car while trying to get upon same while in motion.
25,	2	Michael Laviok, . . .	Outside laborer, . .	28	M.	Spring Mountain No. 4, . .	Jeanesville, Luzerne, . .	(These two men were slightly injured by railroad cars under the breaker while crossing to their work in the morning. Injured; leg broken above the knee by a fall of coal.
25,	3	John Brochmehick, . .	do.	25	S.	do.	do.	
25,	4	Austin Sperit, ...	Stripping miner, . .	36	M.	Spring Mountain strippings, . .	do.	
25,	5	Andrew Rabbish, . .	Stripping laborer, . .	26	S.	Lattimer No. 1, ...	Lattimer, Luzerne, . . .	
26,	6	Hugh Dugan, ...	Miner, ...	. .	. .	Harwood slope No. 2, ...	Harwood, Luzerne, . . .	Right hip dislocated and left thigh fractured by fall of clay.
Feb. 2,	7	Frank Ray, ...	Slate picker, ...	15	S.	Jeddo breaker No. 4, ...	Hazle twp., Luzerne, . .	Severely cut on forearm by a piece of coal falling on him while dressing face of breast with a pick.
8,	8	James Farley, ...	Miner, ...	40	M.	Harwood slope No. 4, ...	Harwood, Luzerne, . . .	Severely burned by steam-heater in pea-coal pocket against which he was drawn while shoveling coal in same.
10,	9	George Nothkevitch, . .	Laborer, ...	25	S.	East Sugar Loaf No. 5, ...	Stockton, Luzerne, . . .	Slightly injured about the back by a fall of clod in breast.
11,	10	Andrew Rognella, . . .	do.	23	S.	Sandy Run, ...	Sandy Run, Luzerne, . .	Back injured by rock which fell while he was preparing to prop it.
13,	11	Joseph Christmore, . .	Outside laborer, . .	20	S.	Stripping Honey Brook No. 2, . .	Trescow, Carbon, ...	Leg fractured below knee by rush of coal at battery, while barring it.
17,	12	John Connsl, ...	do.	30	M.	do.	do.	Right leg fractured below knee; squeezed between truck and pillar.
18,	13	John Harvill, ...	do.	26	M.	Beaver Meadow colliery, . . .	Beaver Meadow, Carbon, . .	Great toe badly crushed by a piece of coal rolling on it.
21,	14	Michael Gust, ...	Jig runner, ...	25	M.	Jeddo No. 4 breaker, ...	Hazle twp., Luzerne, . .	Right leg fractured above knee by fall of frozen coal at stock bank.
23,	15	Anthony Saneconehto, . .	Outside laborer, . .	20	S.	Milnesville stripping, ...	Milnesville, Luzerne, . .	Large toe fractured and body bruised by being whirled around a shaft of machinery in the breaker.
24,	16	George Doorman, . . .	Outside driver, . . .	15	S.	do.	do.	Head cut and shoulders bruised by stack of steam shovel falling on him.
24,	17	John Zeroken, ...	do.	30	S.	do.	do.	Leg fractured by falling under car while un hitching this horse.
								Arms fractured by car running over end of road on to him.

27,	18	Michael Jubar, ...	Outside laborer, .	23	S.	do.	do.	do.	do.	One rib fractured and back bruised; squeezed between stripping cars.
March 3,	19	James Duffy, ...	Miner, ...	32	S.	East Sugar Loaf No. 2, . .	do.	do.	do.	Shoulder bruised and kneecut by coal falling off pillar and rolling down against him.
6,	20	Michael Playo, ...	Outside laborer, .	19	S.	Lattimer stripping, ...	do.	do.	do.	Leg ran over and bruised by a car toward which he was going.
7,	21	James Bliss, ...	do.	26	S.	Spring Mountain stripping,	do.	do.	do.	Severely squeezed between two cars on stripping.
20,	22	John Markowski, ...	Miner, ...	24	S.	East Sugar Loaf W. No. 1,	do.	do.	do.	These two men were burned by an explosion of gas caused by Roman going up the breast with a naked light after the fire- men had extinguished the fire, and by furnishing them with safety lamps.
20,	23	Adam Roman, ...	do.	33	M.	do.	do.	do.	do.	Three ribs fractured; squeezed between de- railed car and pillar by rush of clay.
21,	24	Daniel Dougherty, ...	do.	30	S.	Milnesville slope No. 3, . .	do.	do.	do.	Shoulder and face injured by cast-iron thrown by blast in breaking pipe.
25,	25	John Sully, ...	Outside laborer, .	18	S.	Hollywood colliery, ...	do.	do.	do.	Leg fractured below knee by derailed car at foot of slope when on his way home from work.
29,	26	Martin Toed, ...	Laborer, ...	29	M.	Beaver Brook, ...	do.	do.	do.	Right leg fractured below knee by rock which fell displacing a prop while fixing his buggy road in breast.
29,	27	August Broskoski, ...	Miner, ...	44	M.	Sandy Run, ...	do.	do.	do.	Sight of both eyes destroyed and face burned by premature explosion of duolin powder in frozen clay that he was blasting loose.
April 1,	28	Condy O. Donnell, ...	do.	45	M.	Lattimer slope No. 1, . . .	do.	do.	do.	Shoulder-blade dislocated and body bruised; caught between car and rib.
1,	29	Toney Anellar, ...	Patcher, ...	18	S.	do.	do.	do.	do.	Leg fractured by a large piece of coal rolling down on him from battery.
8,	30	Neal J. Boyle, ...	Miner, ...	28	M.	Colliery No. 4, ...	do.	do.	do.	Hips at breakers between dumpers of railroad cars at breaker, fractured at wrist at the State Hospital, Hazleton.
11,	31	Peter Carlin, ...	Loader, ...	19	S.	Beaver Meadow colliery, . .	do.	do.	do.	Seriously injured about head and breast by coal flying from a premature blast caused by himself, as he shortened the squib, after firing blast.
14,	32	Joseph Yank, ...	Miner, ...	35	M.	Milnesville colliery, ...	do.	do.	do.	Severe contusion of leg by car jumping track and squeezing him.
27,	33	George Wetrow, ...	do.	25	S.	Cranberry colliery, ...	do.	do.	do.	Head and back injured by falling off a ladder while painting smoke-stack of steam shovel.
28,	34	Elias Weaver, ...	Loco engineer, . .	34	M.	Sandy Run, ...	do.	do.	do.	Severely bruised; squeezed between cars trying to couple them while they were moving.
29,	35	A. L. Babcock, ...	Fireman, ...	32	S.	Spring Mountain stripping,	do.	do.	do.	Seriously cut about the head and back; by fall of top coal under which he was drilling a hole.
May 5,	36	Howard, ...	Patcher, ...	18	S.	do.	do.	do.	do.	Head and body injured by coal flying from a shot and burning fire and so which he re- sulted in being severely injured.
6,	37	Thomas Gould, ...	Miner, ...	41	M.	Drifton slope No. 2, ...	do.	do.	do.	Right arm fractured; he was pushing one car and another car followed and ran on to him knocking him down.
11,	38	John Ferriek, ...	do.	34	S.	Milnesville colliery, ...	do.	do.	do.	Left thigh fractured by piece of coal falling on him from the side of the gangway.
11,	39	Stephen Locoshitis, ...	Outside laborer, .	36	S.	Hazleton No. 3, ...	do.	do.	do.	
22,	40	Frank Dranvick, ...	Laborer, ...	35	S.	Highland No. 5, ...	do.	do.	do.	

TABLE No. 5—Continued.

Date of accident.	Number of accident.	Name of Person.	Occupation.	Age.	Martred or single.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
M 25,	41	John Jacob, ...	do.	25	S.	Harwood No. 4 slope, . . .	Howard, Luzerne, . . .	Leg fractured and back injured by fall of coal in parlor vein gangway.
6,	42	Stephen Ketesky, ...	Miner, ...	40	M.	East Sugar Loaf No. 2, . .	Stockton, Luzerne, . . .	These three men were burned on hands and face by an explosion of gas lit by the last two going up in their breast after being warned and ordered not to go. Ketsky was burned in his own breast by the burning gas crossing to his breast through the heading.
6,	43	William Markivish, ...	do.	28	S.	do.	do.	Leg fractured below knee: piece of coal rolled on him from battery.
6,	44	John Klemen, ...	do.	23	S.	do.	Summit Hill, Carbon, . .	Scalp wound and piece of ear cut off by fall top coal.
20,	45	John Kulko, ...	Laborer, ...	32	S.	Colliery No. 4, ...	Stockton, Luzerne, . . .	Jaw fractured and face severely contused by falling from slate on which he was pushing coal, 21 feet to floor of breaker.
20,	46	John Puppy, ...	do.	24	S.	East Sugar loaf, W., No. 1,	Foster twp., Luzerne, . .	Arm fractured: caught between ear and gangway collar.
23,	47	Edward Sims, ...	Slate picker, ...	14	S.	Highland No. 5 breaker, . .	Stockton, Luzerne, . . .	Hand fractured: caught between his dor and the last car of last trip on the track.
26,	48	George Conner, ...	Driver, ...	30	M.	East Sugar Loaf No. 2, . .	Stockton, Luzerne, . . .	Right leg fractured and foot fell by falling on rail and hand injured from fall of coal.
27,	49	Charles Sanrs, ...	Door boy, ...	14	S.	Jeddo No. 3 slope, ...	Hazle twp., Luzerne, . .	Arm fractured and body contused: fell down air shaft while putting key in fan shaft.
7,	50	Andrew Starisko, ...	Laborer, ...	30	M.	Upper Lehigh No. 7 slope, . .	Upper Lehigh, Luzerne, . .	Left thigh fractured: struck by car he was helping to run down counter gangway.
8,	51	Charles Ervine, ...	Machinist, ...	35	M.	Gowen No. 1, Derringer, . .	Gowen, Luzerne, ...	Collar bone fractured and left leg badly bruised: caught by rush of coal by battery prop breaking.
10,	52	John Rhoda, ...	Laborer, ...	19	S.	Upper Lehigh No. 4 slope, . .	Upper Lehigh, Luzerne, . .	Hip dislocated and back bruised: fell out of car at foot of slope.
11,	53	Joseph Bnskevitz, ...	Miner, ...	39	M.	Harwood colliery, ...	Harwood, Luzerne, ...	Squeezed about head and arm: car ran away through his carelessness in not blocking or "scooting" it properly.
12,	54	Michael Kyok, ...	Laborer, ...	25	S.	East Sugar Loaf No. 2 slope, . .	Stockton, Luzerne, ...	Head and shoulder bruised: top coal fell from face of breast and rolled down on him over other coal in breast.
18,	55	Paul Koke, ...	Outside driver, ...	26	S.	Milnesville stripping, . . .	Milnesville, Luzerne, . . .	Back and hips bruised: fall of coal while barring after blast.
31,	56	William McTague, ...	Miner, ...	51	M.	Drifton slope No. 1, ...	Drifton, Luzerne, ...	Right leg severely bruised below knee: piece of slate rolled against him.
Aug. 11,	57	John Stoodock, ...	do.	33	M.	East Sugar Loaf No. 2 slope, . .	Stockton, Luzerne, ...	
14,	58	Henry Cull, ...	do.	47	M.	Highland No. 5 slope, . . .	Foster twp., Luzerne, . .	

30,	Sept.	59	Joseph Andovesin,	Laborer, ...	23	S.	Coleraine slope No. 2,	Coleraine, Carbon, . . .	Severely bruised by fall of bone at face of breast from roof.
4,		60	James Delnce,	Outside laborer, ...	35	M.	Lattimer strippings, ...	Lattimer, Luzerne, . . .	Leg fractured; runaway car on plane struck derailed car which he was helping to replace on road.
6,		61	Michael Yeddo,	do.	23	S.	Jeddo No. 3 stripping, ...	Hazle twp., Luzerne, . .	Severely bruised; fell down old breast while sloping off clay bank near pick and shovel.
8,		62	Joseph Kromise,	Laborer, ...	23	M.	Upper Lehigh shaft, ...	Upper Lehigh, Luzerne.	Skull fractured; piece of clod fell on him while he was engaged in making room for a stringer between props under it.
22,		63	Simon O. Connell,	Driver, ...	18	S.	Beaver Brook colliery, ...	Hazle twp., Luzerne, . .	Feet bruised and ankle dislocated; car left the track and caught and squeezed him against a prop.
25,		64	Hugh Dugan,	Miner, ...	55	S.	Harwood No. 4 slope, ...	Harwood, Luzerne, . . .	Slightly injured by piece of clod falling on him.
25,		65	Frank Cannon,	Outside driver, ...	22	S.	Spring Mountain strippings,	Jeanesville, Luzerne, . .	Hands and face burned by powder explosion; he amused himself lighting some damaged squibs, one of which flew into the powder.
2,	Oct.	66	William McGee,	Loader, ...	20	S.	Honey Brook No. 2, ...	Trescow, Carbon, ...	Body severely squeezed between car and post of breaker.
4,		67	Daniel Roarty,	Miner, ...	45	M.	Highland No. 5 slope, ...	Foster twp., Luzerne, . .	Arm fractured above elbow; fall of coal while barring after blast.
4,		68	Neal Niccolio,	Oilier, ...	19	S.	Lattimer strippings, ...	Lattimer, Luzerne, . . .	Severely bruised and contused from falling under locomotive and empty cars on which he got, contrary to orders.
13,		69	Charles Babil,	Footman, ...	22	S.	Milnesville No. 3 slope, ...	Milnesville, Luzerne, . .	Leg fractured; struck by mine car at foot of slope.
17,		70	Andrew Kaloski,	Driver, ...	17	S.	Hazle Brook, ...	Hazle Brook, Luzerne, . .	Arm severely bruised; mule pulled car off track against prop.
17,		71	John Ducek,	Laborer, ...	30	S.	do.	do.	Back
23,		72	Condy Moye,	Patcher, ...	16	S.	do.	do.	Leg fractured above knee; struck by empty car through his misplacing latches.
23,		73	Waldie Stasskill,	Miner, ...	22	S.	East Sugar Loaf, W., No. 1,	Stockton, Luzerne, . . .	Burned by an explosion of gas in his breast, upon which he went contrary to orders of the fire-boss.
25,		74	William Sohrum,	Driver, ...	18	S.	South Sugar Loaf, ...	Hazle twp., Luzerne, . .	Body severely bruised; squeezed between car and door frame.
2,	Nov.	75	Michael Gergus,	Miner, ...	35	M.	Beaver Brook, ...	do.	Thumb of right hand nearly severed by a piece of coal at which he was barring suddenly falling and striking his hand.
3,		76	Joseph Bartasewick,	Laborer, ...	27	M.	Upper Lehigh No. 7 slope, . .	Upper Lehigh, Luzerne,	Left arm fractured below elbow by fall of coal while picking at it.
4,		77	Raphael Tabardi,	do.	18	S.	Gowen No. 4 Derringer, . . .	Derringer, Luzerne, . .	Head severely squeezed between prop and car which was derailed by effort to push it up breast and struck him.
6,		78	John Schnuck,	Miner, ...	35	M.	East Sugar Loaf W. No. 1,	Stockton, Luzerne, . . .	Shot by a blast turned and missed twice and then turned and pushed his needle into it, exploded; bruised about the body.
9,		79	John Corban,	Laborer, ...	27	S.	Milnesville No. 4 slope, . . .	Milnesville, Luzerne, . .	Head and back lacerated by coal falling from roof upon him while engaged in loading car.
15,		80	John Pehorle,	Outside laborer, ...	21	S.	Highland No. 3 stripping, . .	Foster twp., Luzerne, . .	Leg fractured below knee by slide of clay bank from top of vein.
20,		81	George Rosinco,	Laborer, ...	45	M.	Jeddo No. 3, ...	Hazle twp., Luzerne, . .	Right wrist fractured by slipping on sheet iron while using his pick and falling on shute.

TABLE NO. 5. — *Continued.*

Date of accident.	Number of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Nov. 22,	82	John Schuter.	Laborer.	26	M.	Lattimer stripping plane. . .	Lattimer, Luzerne. . . .	Right leg ran over at ankle by car coming down plane, striking him as he crossed the tracks on his way home from work.
25,	83	Hugh Roberts.	Miner.	55	S.	Harwood No. 2 slope.	Harwood, Luzerne. . . .	Right leg fractured by clod falling after he barred coal from under it.
28,	84	John Shabach.	Driver.	20	S.	Milnesville No. 4 slope. . . .	Milnesville, Luzerne. . .	Body severely bruised; squeezed between cars he was driving.
Dec. 8,	85	Michael Batcha.	Laborer.	40	M.	Sandy Run.	Sandy Run, Luzerne. . . .	Small bone of leg fractured by runaway car; while attempting to open door for it.
11,	86	Henry Seiroell.	Miner.	47	M.	Jeddo No. 3.	Hazle twp., Luzerne. . . .	Right leg fractured by piece of coal from premature blast. Shot exploded almost as soon as he lit the squib.
11,	87	Andrew Hoffmeir. . . .	Outside driver.	21	S.	Highland No. 2 stripping. . . .	Foster twp., Luzerne. . . .	Leg bruised and lacerated; while driving empty car he stumbled and fell in front of it and it passed over him.
12,	88	John Carros.	Outside laborer	38	S.	E. Crystal Ridge stripping. . .	Hazle twp., Luzerne. . . .	Both legs and left arm fractured by empty car at the bunk; allowed to run away with him.
13,	89	Michael Denoske.	Topman.	20	S.	Harwood No. 1 slope.	Harwood, Luzerne.	Arm severely lacerated by falling in front of a car which he was spragging at the top of slope.
14,	90	John Scranton.	Laborer.	30	M.	Cranberry.	Hazle twp., Luzerne. . . .	Severely squeezed below hips; trip of loaded cars struck end of plank he was carrying to the chute.
15,	91	Harry Wallen.	Outside driver.	14	S.	Lattimer stripping.	Lattimer, Luzerne.	Collar bone fractured; empty car ran away and caught and squeezed him against loaded car he was driving.
18,	92	Andrew Olicbna.	Loader.	19	S.	Derringer breaker.	Derringer, Luzerne. . . .	Knee-cap dislocated; he was knocked off rear end of trip of cars by the bump when they came together after parting through breaking of coupling.
21,	93	Matthew Scott.	Pump runner.	14	S.	Derringer colliery railroad. . .	do.	One leg so badly crushed it had to be amputated above the knee and the other fractured; riding home from work on mine cars he fell under them in some way.
21,	94	Angelo Viesco.	Laborer.	30	S.	Lattimer No. 4 slope.	Lattimer, Luzerne.	Finger cut on fly rock which rolled off chute and struck his finger on the top rail of car.

21, 95	Charles Saltzman, . .	Loco'e latcher, . .	17	S.	Lattimer No. 3 slope, . .	do.	do.	Four fingers of right hand cut off by locomotive; he put his hand between wheels to close the latch.
23, 96	Mories Vallesko, . .	Laborer, ...	27	S.	Highland No. 2, ...	Foster twp., Luzerne, .		Small bone of left leg fractured; he went inside of battery when miner went up to start down coal after firing a blast and the rush caught him.
27, 97	Allen Mock, ...	Outside driver, . .	15	S.	Jeddo No. 3 strippings, . .	Hazle twp., Luzerne, . .		Arm broken and leg bruised; fell under a loaded cart on dump.
28, 98	William Snockowitch, .	Miner, ...	40	M.	Highland No. 2 slope, . .	Foster twp., Luzerne, .		Eyes and face injured by coal flying from shot, which he thinking it had missed returned to reload it just ahead.
29, 99	Frank Thurkoski, . .	Laborer, ...	25	M.	Spring Brook, ...	Yorktown, Carbon, . . .		Thigh fractured by fall of coal; visible engaged in loading car near face of breast.

Recapitulation of Table No. 5.

Occupation of Persons.		Nationality.		Name and Cause of Accident.		Per cent.	
Number Injured.	Per cent.	Number Injured.	Per cent.	Number Injured.	Per cent.	Number Injured.	Per cent.
Miners, ...	28.3	Hungarian, ...	34.3	By explosions of C. H. gas, ...	6	6.1	
Mine laborers, ...	23.2	Polish, ...	19.2	By falls of coal roof and sides, ...	29	25.3	
Mine drivers, ...	5.1	American, ...	18.2	By falls of coal and clay on strippings, ...	4	4.0	
Door boys and helpers, ...	3.1	Irish, ...	12.1	By mine cars, ...	18	15.2	
Pump runners, ...	1.0	Italian, ...	8.1	By cars on surface, ...	23	23.2	
Machinists and engineers, ...	3.0	English, ...	4.1	By machinery, ...	2	2.0	
Firemen and helpers, ...	2.0	German, ...	2.0	By blasts and powder explosions, ...	11	11.1	
Outside laborers, ...	22.2	Welsh, ...	1.0	By miscellaneous causes, ...			
Others and patchers, ...	8.1	Austrian, ...	1.0				
Slate pickers, ...	2.0						
Totals, ...	100.0	Totals, ...	100.0	Total accidents, ...	99	100.0	



SIXTH ANTHRACITE DISTRICT.

(SCHUYLKILL COUNTY.)

Shenandoah, Pa., 6th April, 1894.

Hon. Thomas J. Stewart, Secretary of Internal Affairs:

Sir: I have the honor of herewith submitting to you my annual report as Inspector of Mines of the Sixth Anthracite Inspection District for the year 1893, as required by section ten, article two, of the Act June 2, 1891. It contains the usual tabulated forms giving the names and location of the collieries in the district, together with the number of tons of coal mined and shipped from each colliery, at the same time showing the total production and shipments in tons of 2,240 pounds per ton from the district during the year.

The number of men employed at each description of service, the number of fatal and non-fatal accidents, and the nationality of those killed and injured, also the number of widiows and orphans.

Yours very respectfully,

WILLIAM STEIN,
Inspector of Mines.

Examination of Applicants for Mine Foreman's Certificates.

The annual examination of applicants for mine foreman's certificates in the Sixth district was held in Pottsville, July, 1893.

The examiners were William Stein, Mine Inspector; William H. Lewis, Superintendent; John Shurlby and William Carrol, miners. The following are the names of the successful candidates: Ralph Baird, Daniel L. Williams and Richard D. Reese, Shenandoah; Thomas Watson and Luke Coogan, Girardville; Philip H. Jones, Shaft; David G. Hughes, St. Nicholas; Thomas L. Williams, Audenried; David L. Jenkins, Shenandoah.

Since the year 1888 the number of employes has increased 33 per cent. in the Sixth district, and the death rate has increased in the same proportion, which, in my opinion, is due to those employed being unskilled in mining, and not a lack of knowledge or vigilance on the part of the mine officials.

We have carefully examined and investigated the causes of serious and fatal accidents, and find that they have occurred either from carelessness, recklessness or a want of proper mining knowledge to enable the unfortunates to guard against existing dangers, which present themselves while mining coal, and which can only be observed and taken advantage of by the operatives themselves. This is also true with regard to those engaged or employed in connection with the transportation department of our collieries. As a proof of this statement, and it is much to be regretted, fourteen lost their lives, during the year 1893, by being crushed by mine cars, being over twenty-five per cent. of the total deaths, as shown on Table A. Suggestions have been given from varied sources with a view to exercise the general mining public to better legislation for the protection of those employed in and about our mines, but when we examine into the causes giving birth to these suggestions, we find some mercenary pet enterprise, or illegitimate political scheme behind it, and not that true philanthropic spirit which ought to prevail in the minds of those who would have us believe them their brother's keepers.

It has been very clearly demonstrated to me during these years as Mine Inspector, that no system of mine inspection can prevent a very large number of accidents from occurring in and about the mines. We cannot employ men and boys and send one along with each, to see that they do not go under a falling piece of slate or coal, or unscrew the gauze from their lamp by picking the lock, or have constant vigilance exercised to prevent some from jumping on moving cars. A daily practical observance by the workman himself while performing his day's work is the only way by which we can look for a reduction in the loss of life, and not so much as some would have it in a theoretical treatment in the mining of coal.

From the year 1850 down to the year 1870, fire damp was considered to be greatest enemy the miner had to encounter, and in some mining sections in this and other countries is considered so yet, although I am glad to say in the Sixth Anthracite district that deaths resulting from explosions of gas are becoming the light of other days. Of 12,551 employed inside in 1893, one man lost his life from expulsion of gas; three men were killed by careless handling of blasting material; fourteen were killed in attempting to jump on moving cars; twelve were killed by falls of coal and roof, and in making examinations of such accidents, it was quite apparent to me as well as to those who accompanied me, that the victims were either reckless or ignorant of the danger that presented itself. One was killed by what we generally term a premature explosion, but it was proven at the inquest that this man did not give time for the blast to explode. One was killed in attempting to cross the slope track. The fore-

man was witness to this death, and even called to him not to cross that way. One was killed by coal flying from a shot, he did not retreat to a place of safety. One was killed by falling against the moving machinery he had charge of. He was in the act of pulling off one of his boots in close proximity to the engine when he stumbled and fell into the machinery. One was fatally injured and died four months after the date of the accident. He jumped from a railroad car to the ground and sprained his foot. Death was caused from exhaustion, so it was reported to me. One was killed by a piece of earth rolling down on him at the Honey Brook strippings. These show that at least thirty-six lives out of a total of sixty, or 60 per cent. were lost by being either careless, reckless or ignorant.

Condition of Collieries.

The condition of the collieries in my district is very satisfactory. We have in circulation a sufficient quantity of air for all purposes, and at some collieries 600 cubic ft. per man instead of 200 cubic feet. At one of our new and most extensive collieries, called Maple Hill, belonging to the Philadelphia and Reading Coal and Iron Company, an air shaft has been sunk 10x10 over which a new fan has been erected, twenty-one feet in diameter. Fan engine 16-inch cylinder, 30-inch stroke, direct acting. Another fan of the same type and size is about to be erected over a shaft 151 feet deep, area 10 x 10 feet on the north dip of Maple Hill colliery. This we consider a model anthracite colliery, both as regards inside and outside equipment. At Bear Run colliery belonging to the same company a new 12-foot fan has been erected on the crop of middle split of Mammoth vein about 200 feet west of main slope to ventilate the Buck Mountain and Seven-foot veins.

At Suffolk Colliery.

A new tender slope has been sunk on the Holmes vein, a distance of 300 feet, and the water lodgment gangways are completed, having an area of 70 feet. The main transportation openings are now in course of construction.

At St. Nichols colliery a tunnel has been driven from the Mammoth vein, second lift, to the Seven-foot vein, a distance of about 37 yards. A new additional pump 12 inches x 48 inches and two new tubular boilers have been put in place.

At Ellengowan colliery the single track slope sunk on the Holmes vein has been extended 140 yards, making the fourth lift.

At Knickerbocker colliery a tender slope has been sunk on top split of Mammoth vein to level of No. 4 slope. A pair of engines have been erected on top of this tender slope, size 18 x 36 inches. This tender

slope has been sunk to increase the safety of the workmen while being hoisted up and down or to and from their work. A new pump house has been cut out of the rock, in which is erected a duplicate pump, and immediately east of the bottom of the tender slope, a tunnel has been driven north across the measures cutting the Bottom split of the Mammoth, Skidmore, Seven-foot and Buck Mountain veins, and satisfactory openings are being made to have all these well ventilated.

At Turkey Run Colliery a new slope was sunk from the Mammoth vein through the rock measures to the Seven-foot underlying the Mammoth. Tunnels were then driven to the top and bottom split of the Mammoth, also to the Buck Mountain. A new fan was erected on Seven-foot vein connecting with the other veins.

At Draper colliery many improvements have been made and are still in course of construction. The Philadelphia and Reading Coal and Iron Company took possession of this colliery a little over a year ago, and in order to keep up the shipments it was necessary to sink on the Mammoth and also on the Holmes. The Mammoth slope is extended 85 yards, timbered with yellow pine, 16-inch timber, and is a continuation from the fourth to the fifth lift. Size of slope: 17 feet collar, 22 feet spread and $7\frac{1}{2}$ feet above rail to bottom of collar. An airway is also driven parallel to this slope, timbered with a 10-foot collar, 13-foot spread and $7\frac{1}{2}$ feet high, which gives an area of $86\frac{1}{4}$ feet for return airway. The Holmes slope from the second lift is sunk 330 feet to reach the third level on the Mammoth vein. Size, 15 foot collar, spread 19 feet and 8 feet off the rail, timbered with 16 inches yellow pine timber and lagged all around with 4-inch hard wood laggings. This slope is one of the best openings which has been constructed and reflects credit to all who had the charge of its construction (it is what is called a subterranean slope). An airway is in progress from the second lift to surface, driven in the Seven-foot vein where a new fan will be erected to ventilate the workings, in connection with the subterranean slope. It is gratifying to note the work done to improve the condition of the collieries in the Sixth district, and the proposed changes, compared with even two years ago to increase the safety of the lives of the miners and other workmen in various ways. We have no standing gas, so far as it is possible or practicable to examine for and detect it. We are free from danger of water bursting from abandoned collieries, and while we are sorry to have to report the loss of 60 lives during the year, we feel thankful that no unusual or extraordinary accident has occurred.

TABLE A—*Showing Comparative Statements of Fatal Casualties for the Years 1892 and 1893.*

	Years.	
	1892.	1893.
Explosions of fire-damp, ...	7	1
Explosions of blasting material, ...		3
Premature explosions, ...	4	1
Falls of coal and roof, ...	21	27
Crushed by mine cars, ...	9	14
Falling down shafts and slopes, ...		2
By coal flying from shots, ...		1
By machinery on surface, ...	2	4
Boiler explosions, ...		2
Miscellaneous, ...	11	5
Totals, ...	54	60

Number of Fatal Accidents and Quantity of Coal Produced per Life Lost.

	Number of fatal accidents.	Tons of coal produced per fatal accident.
Philadelphia and Reading Coal and Iron Company, ...	41	92,767
Lehigh Valley Coal Company, ...	6	98,978½
Lehigh and Wilkes-Barre Coal Company, ...	5	96,810
Lentz, Lilly and Company, ...	5	386,335
Silverbrook Coal Company, ...	5	275,732
Mill Creek Coal Company, ...	5	187,528
William Penn Coal Company, ...	2	118,686½
Coxe Brothers, ...	3	60,734
Individual operators, ...	3	161,764

TABLE B—*Showing Comparative Statement of Non-Fatal Casualties for the Years 1892 and 1893.*

	Years.	
	1892.	1893.
Explosions of fire-damp, ...	31	28
Explosions of blasting material, ...	31	8
Premature explosions, ...	4	10
Falls of coal and roof, ...	36	36
Crushed by mine cars, ...	17	28
Falling down shafts and slopes, ...	17	28
By coal flying from shots, ...	3	1
By machinery on surface, ...	2	8
Miscellaneous, ...	33	20
Totals, ...	122	139

TABLE C—*Showing the Quantity of Coal Produced and Shipped During the Years 1892 and 1893.*

	Years.	
	1892.	1893.
Quantity of coal produced in tons of 2,240 lbs., ...	6,382,346	6,674,807
Quantity of coal shipped in ton of 2,240 lbs., ...	5,630,850	6,252,493

TABLE D—*Comparisons Between the Years 1892 and 1893.*

	Years.	
	1892.	1893.
Number of persons employed, ...	20,414	21,872
Tons of coal produced per life lost, ...	118,191	111,247
Number of tons of coal mined per each personal injury, ...	36,263	40,826
Ratio of employes per life lost, ...	378	365
Average number of tons of coal mined per employe, ...	312	305
Ratio of employes per each personal injury, ...	130	157

TABLE E—Taking the death rate per thousand as a basis of comparison between the different companies and individual operators we have the following ratio for the Year.

	Number of em- ploys.	Number of deaths.	Death rate per thousand.
Philadelphia and Reading Coal and Iron Company, ...	13,520	41	3.03
Lehigh Valley Coal Company, ...	1,601	6	3.74
Lehigh and Wilkes-Barre Coal Company, ...	1,601	5	3.12
Lentz, Lilly & Co., ...	1,146	No deaths	
Silverbrook Coal Company, ...	682	No deaths	
Mill Creek Coal Company, ...	741	No deaths	
William Penn Coal Company, ...	633	2	3.16
Coxe Brothers, ...	726	3	4.13
Individual operators, ...	1,324	3	2.26

Comparative Statement of Fatal and Non-Fatal Casualties and their Causes for Five Years.

Casualties.	1889.	1890.	1891.	1892.	1893.	Total for five years.
<i>Fatal.</i>						
Explosions of fire-damp, ...	4	3	4	7	1	
Explosions of blasting materials, ...		1	3		3	
Premature explosions, ...		2	6	4	1	
Falls of coal and roof, ...	32	22	28	21	27	
Crushed by mine cars, ...	6	14	7	9	14	
Falling down shafts and slopes, ...		6	3		2	
By coal flying from shots, ...	1	2	1		1	
By machinery on surface, ...	2	2	2	2	4	
Boiler explosions, ...	2	2			2	
Miscellaneous, ...	13	12	12	11	5	
Totals of the respective years, ...	60	66	66	54	60	306
<i>Non-Fatal.</i>						
Explosions of fire-damp, ...	14	18	10	31	28	
Explosions of blasting material, ...	2	4	5		8	
Premature explosions, ...		2	5	4	10	
Falls of coal and roof, ...	32	38	31	32	36	
Crushed by mine cars, ...	15	12	18	17	28	
Falling down shafts and slopes, ...	2					
By coal flying from shots, ...	1	1	3	3	1	
By machinery on surface, ...			2	2	8	
Boiler explosions, ...						
Miscellaneous, ...	17	22	18	23	20	
Totals for the respective years, ...	118	91	92	112	139	533

Years.	Killed.	Injured.	Total.	Total number of employees.	Number of employees to each casualty.	Number of tons of coal mined to each fatal casualty.	Number of tons of coal ruined to each non-fatal casualty.	Ratio of tons of coal to each casualty.	Number of tons of coal mined to each employee.	Total number of tons of coal mined.
1889, ...	60	83	143	15,916	111	87,007	58,810	34,134	306	5,220,464
1890, ...	66	97	163	13,289	118	94,401	61,293	38,260	323	6,236,854
1891, ...	63	92	155	13,287	123	95,747	69,775	40,628	339	6,419,302
1892, ...	54	122	176	9,411	116	118,491	52,313	36,264	312	6,382,346
1893, ...	60	130	190	21,954	110	110,597	47,737	34,345	302	6,674,807
Totals, ...	306	633	839	90,702	578	596,233	292,928	182,630	1,272	30,933,475
Average, ...	61	126	167	19,405	115	101,246	58,585	37,710	254	6,186,694

Total number of persons employed inside and outside and the description of services:

Inside.

Inside foreman, ...	156
Miners, ...	4,745
Miners' laborers, ...	2,564
All other company men, ...	3,949
Drivers and runners, ...	857
Door boys and helpers, ...	280

Total inside, ...	12,551
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Outside.

Outside foremen, ...	66
Blacksmiths and carpenters, ...	479
Engineers and firemen, ...	621
Slate pickers, ...	4,882
All other company men, ...	3,330
Superintendents and clerks, ...	105

Total outside, ...	9,423
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Total inside and outside, ...	21,974
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Average number of days worked by the Philadelphia and Reading Coal and Iron Company, ...	195 6-10
Average number of days worked by the Lehigh Valley Valley Coal Company, ...	181 9-10
Average number of days worked by the Lehigh and Wilkes-Barre Coal Company, ...	276 1-2
Average number of days worked by Lentz, Lilly & Co., ...	170 8-10
Average number of days worked by the Silver Brook Coal Company, ...	230 1-2
Average number of days worked by the Mill Creek Coal Company, ...	109 3-4
Average number of days worked by the William Penn Coal Company, ...	254
Average number of days worked by Coxe Brothers, ...	254
Average number of days worked by individual firms, ...	237 1-10

Number of Accidents Fatal and Non-Fatal and the Nationalities of those killed and injured:

	Fatal.	Non-Fatal.
Americans, ...	4	6
English, ...	4	8
Irish, ...	11	29
Welsh, ...	1	6
Germans, ...	2	7
Scotch, ...		1
Poles, ...	34	68
Hungarians, ...	2	9
Italians, ...		2
Austrians, ...	2	3
Total, ...	<u>60</u>	<u>139</u>

TABLE NO. 1—Showing location, &c., of collieries in the Sixth Anthracite District for the year ending December 31, 1893.

Name of Colliery.	Name of Operator.	Location—Schuylkill County.	Name of Superintendent.	Postoffice Address.
Boston Run, ...	Philadelphia and Reading Coal and Iron Co., do.	St. Nicholas, ...	John Velth, Esq., . . .	Pottsville, Schuylkill county.
" Bear Run, ...	do. do.	do. do.	do. do.	do. do.
" Blunkowan, ...	do. do.	Maple Dale, ...	do. do.	do. do.
" Elkwood, ...	do. do.	Girardville City, . . .	do. do.	do. do.
" Girard, ...	do. do.	Girardville, ...	do. do.	do. do.
" Girard Mammoth, . .	do. do.	Raven Run, ...	do. do.	do. do.
" Gilberton, ...	do. do.	Gilberton, ...	do. do.	do. do.
" Hammond, ...	do. do.	Girardville, ...	do. do.	do. do.
" Indian Ridge, ...	do. do.	Shenandoah, ...	do. do.	do. do.
" Knickerbocker, . . .	do. do.	Yatesville, ...	do. do.	do. do.
" Kohlmoor, ...	do. do.	Shenandoah, ...	do. do.	do. do.
" Mahanoy City, ...	do. do.	Mahanoy City, ...	do. do.	do. do.
" North Mahanoy, . . .	do. do.	do. do.	do. do.	do. do.
" St. Nicholas, ...	do. do.	St. Nicholas, ...	do. do.	do. do.
" Suffolk, ...	do. do.	do. do.	do. do.	do. do.
" Schuylkill, ...	do. do.	Mahanoy City, ...	do. do.	do. do.
" Shenandoah City, . .	do. do.	Shenandoah City, . . .	do. do.	do. do.
" Turkey Run, ...	do. do.	do. do.	do. do.	do. do.
" Tunnel Ridge, ...	do. do.	Mahanoy City, ...	do. do.	do. do.
" West Bear Ridge, . .	do. do.	Mahanoy Plane, ...	do. do.	do. do.
" Maple Ridge, ...	do. do.	do. do.	do. do.	do. do.
" Maple Hill, ...	do. do.	St. Nicholas, ...	do. do.	do. do.
" Draper, ...	do. do.	Gilberton, ...	do. do.	do. do.
" Mahanoy Jig House, .	do. do.	Mahanoy City, ...	do. do.	do. do.
" Pack No. 1, ...	Lehigh Valley Coal Company, do.	Lost Creek, ...	Col. D. P. Brown, . . .	Lost Creek, Schuylkill county.
" Pack No. 2, ...	do. do.	Brownsville, ...	do. do.	do. do.
" Pack No. 3, ...	do. do.	Lost Creek, ...	do. do.	do. do.
" Pack No. 4, ...	do. do.	Rapabannock, ...	do. do.	do. do.
" Pack No. 5, ...	do. do.	Audenreid, ...	David R. Roberts, Esq.,	do. do.
" Honey Brook No. 3, .	do. do.	do. do.	do. do.	do. do.
" Honey Brook No. 5, .	do. do.	do. do.	Edward Reese, Esq., . .	do. do.
" Park No. 2, ...	Lentz, Lilly & Co., ...	Park Place, ...	J. S. Wentz, Esq., . . .	Mauch Chunk, Pa.
" Springdale, ...	do. do.	do. do.	do. do.	Centralia, Columbia county.
" Silver Brook No. 1, .	Silver Brook Coal Company, do.	Silver Brook, ...	do. do.	do. do.
" Silver Brook No. 2, .	do. do.	Shaft P. O., ...	William H. Lewis, . . .	Shaft P. O., Pa.
" Williams Penn, . . .	Pennsylvania Coal Company, do.	Buck Mountain, ...	Thomas D. Jones, . . .	Hazleton, Luzerne county.
" Buck Mountain, . . .	Mill Creek Coal Company, do.	do. do.	do. do.	do. do.
" Vulcan, ...	do. do.	Shenandoah City, ...	Thomas Baird, ...	Shenandoah City.
" Kenley's Run, ...	Thomas Coal Company, . . .	Mahanoy City, ...	William A. Lathrop, . .	Wilkes-Barre, Pa.
" Kensington, ...	Nesbitt and Company, . . .	do. do.	James Wynn, ...	Mahany City.
" Lawrence, ...	Nesbitt & Co., ...	do. Plane, ...	Walter S. Shaefer, . .	Pottsville.
" Cambridge, ...	Gilbert Coal Company, . . .	Shenandoah City, ...	Daniel B. Clegg, ...	Shenandoah City.
" Coxie Brothers, ...	Cambridge Coal Company, .	Nelson City, ...	Eckler B. Clegg, ...	Shenandoah county.
" Oneida, ...	Leaman & Gerber, ...	Gilberton, ...	Mahlon Gerber, ...	Frankville, Pa.
" Furnace, ...	do. do.	do. do.	do. do.	do. do.

TABLE NO. 2.—Gives the total number of tons of coal mined in each colliery, number of days worked, number of employees, number of persons killed and injured, number of kegs of powder used, &c., in the Sixth Anthracite District for the year ending December 31, 1893.

Name of Collieries.	Location.	Total production in tons of coal.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.	Number mine locomotives.	Pounds of dynamite.
Boston Run, ...	St. Nicholas,	149,000	140,572	218	538	2	9	3,105	26	51	..	12,150
Pear Run, ...	do.	150,000	144,422	179.7	646	5	8	3,796	24	42	..	4,159
Tellangowan, ...	Maple Dale,	337,000	319,113	209.05	903	4	3	2,016	34	103	..	4,094
Edinwood, ...	Mahanoy City,	32,000	86,994	366.95	341	..	..	2,746	16	36	..	2,200
Grard, ...	Grardville,	128,000	121,868	253	383	1	1	1,630	39	41	..	7,455
Grard Mammoth, ...	Raven Run,	174,463	164,463	207.8	730	..	1	4,301	25	25	..	2,582
Gilberton, ...	Gilberton,	106,729	107,293	212.85	534	2	3	4,377	36	48	..	15,030
Hammond, ...	Shenandoah,	187,353	187,082	231.85	615	..	1	3,522	32	54	..	7,443
Indian Ridge, ...	Shenandoah,	170,323	162,323	205.2	506	2	5	4,494	32	44	..	2,776
Knickerbocker, ...	Shenandoah,	170,103	159,103	210.5	506	..	..	4,702	33	48	..	14,625
Mohrnoor City, ...	Mahanoy City,	140,746	132,746	211.55	464	2	4	3,629	30	50	..	9.2
North Mahanoy, ...	do.	123,498	116,398	141.6	599	3	..	3,068	16	39	..	1,513
St. Nicholas, ...	St. Nicholas,	157,932	149,932	207.15	394	3	7	3,164	40	39	..	1,999
Suffolk, ...	do.	244,977	229,977	201.8	757	2	3	7,331	18	66	..	2,777
Schenykill, ...	Mahanoy City,	87,000	82,536	182.45	406	..	1	2,781	20	35	..	636
Shenandoah City, ...	Shenandoah,	184,529	174,529	194.55	690	5	1	4,176	28	64	..	3,901
Turkey Run, ...	do.	170,432	159,432	211.64	543	1	8	2,885	14	50	..	3,312
Tunnel Ridge, ...	Mahanoy Phane,	158,068	149,068	216.55	529	..	4	3,072	24	48	..	2,643
West Ridge, ...	Shenandoah,	251,479	237,479	106.95	822	4	1	2,754	46	68	..	12,252
Maple Hill, ...	St. Nicholas,	93,800	88,800	157.4	398	2	3	1,705	34	43	..	24,110
West Shenandoah, ...	Gilberton,	124,442	117,442	216.35	1,195	5	9	10,080	24	47	..	16,117
Draper, ...	Lost Creek,	90,407.01	77,676.01	163.4	451	..	..	1,710	37	36	..	6,274
Packer No. 2, ...	Brownsville,	188,538.15	153,174.15	186.05	281	1	..	3,417	24	31	..	2,649
Packer No. 3, ...	Lost Creek,	139,535.66	122,567.66	189.25	310	1	3	2,848	30	29	..	1,932
Packer No. 4, ...	Rappahannock,	176,825.00	157,800.00	189.25	572	2	3	3,829	32	44	..	12,373
Packer No. 5, ...	Audenreid,	134,360.00	121,360.00	271.9	579	3	12	5,538	49	78	..	9,888
Honeybrook No. 4, ...	do.	285,070.06	281,983.06	281.10	1,022	2	9	3,142	56	47	..	9,170

Park No. 2.	Park Place,	202,368.15	236,586.15	172.4	441	...	1	2,424	30	49	3,000
Shimadate, No. 1,	do.	124,866	111,005.15	163.2	745	...	1	6,881	41	13	1,250
Silverbrook, No. 1,	Silverbrook,	125,868	113,398	206	339	...	...	2,016	30	29	7,362
Silverbrook No. 2,	do.	125,352	114,888	235	353	...	...	2,103	5	9	2,410
William Penn,	Shaf...	297,373	219,371	235	733	2	1	4,595	48	63	7,050
Oneida,	Nelson City,	151,354.08	151,354.08	254	736	3	3	4,595	47	62	3,411
Kehlers Run,	Shenandoah,	109,754	109,754	270.5	286	...	...	3,182	24	39	4,150
Buckmountain,	Buckmountain,	158,845.00	149,020.07	179.5	407	...	4	3,275	24	43	1,700
Vulcan,	do.	28,683	28,004	39.25	334	...	...	1,159	16	28	1,700
Glendon,	Mahanoy City,	70,334.12	58,480.12	156.6	240	1	2	1,529	24	41	2,650
Primrose,	do.	80,975.06	72,227.06	247	247	1	2	2,400	22	27	2,650
Lawrence,	Mahanoy Plane,	82,665	77,584.15	248	507	1	1	240	44	31	1,100
Cambridge,	Shenandoah,	26,060	24,965.02	221.10	71	...	1	666	3	8	2,650
Furnace,	Gilberton,	44,821.09	44,821.09	279.5	71	...	...	1,050	2	8	2,650
Mahanoy Jig house,	Mahanoy City,	...	...	...	...	...	...	...	17	...	...
Yatesville Jig,	Maple Dale,	38,979	38,979	200.45	82	...	...	...	6	2	...
Stoddard Washery,	Gilberton,	68,654	68,654	...	...	...	...	...	...	...	...
Totals,	...	6,674,507	6,252,493	...	21,872	60	139	148,537	1,205	1,933	243,863

TABLE No. 2.—Showing the number of each class of employes at each colliery in the Sixth Anthracite District during the year 1893.

Names of Collieries.	Occupation of Persons Employed Inside.						Occupation of Persons Employed Outside.								
	Inside foremen.	Miners.	Miners' laborers.	All company men.	Drivers and runners.	Door boys and helpers.	Total inside.	Outside foremen.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	All other company men	Superintendents, book-keepers and clerks.	Total outside.	Grand total inside and outside.
Boston Run, ...	6	99	33	117	14	3	272	30	15	121	96	265	538	265	538
Bear Run, ...	5	90	167	121	24	5	412	5	9	132	84	231	368	231	646
Ellangowan, ...	10	237	136	104	37	11	535	27	15	200	121	321	521	368	903
Elmwood, ...	4	100	35	85	20	2	246	1	8	97	52	165	411	165	576
Girard, ...	4	56	22	91	13	5	191	11	17	76	62	163	340	163	503
Girard Mammoth, ...	2	44	18	42	9	1	116	1	11	9	71	44	137	277	393
Gilberton, ...	6	169	77	181	17	12	453	7	16	147	103	257	466	257	723
Hannood, ...	9	102	24	118	16	7	273	14	19	128	96	261	514	261	775
Indian Ridge, ...	9	139	82	57	38	5	330	30	14	146	91	243	615	396	1011
Knickbocker, ...	7	147	48	82	13	1	298	17	16	215	114	336	684	336	1020
Kohnroor, ...	6	176	50	54	26	8	330	7	15	86	64	176	506	200	706
Nashua, ...	4	101	69	90	24	8	364	5	11	117	63	200	464	200	664
Northampton, ...	3	114	57	70	30	10	339	1	8	128	102	260	589	260	849
St. Nicholas, ...	3	140	114	57	19	10	404	13	13	92	80	130	334	130	464
Schock, ...	3	198	104	104	21	12	514	6	13	143	114	257	466	257	723
Schock Hill, ...	3	99	44	80	21	10	276	1	13	168	108	276	486	276	762
Shenandoah, ...	6	145	55	140	20	11	373	2	15	95	69	214	483	214	697
Shenandoah City, ...	4	127	106	72	20	14	353	13	9	121	77	277	540	277	817
Tunnel Ridge, ...	4	155	23	98	36	9	313	1	22	190	140	330	660	330	990
West Shenandoah, ...	7	109	84	209	32	9	450	2	16	79	68	147	322	147	469
Maple Hill, ...	4	104	37	67	16	4	232	5	10	310	142	452	864	452	1316
Draper, ...	5	72	24	141	15	5	262	1	5	98	66	163	326	163	489
Packer No. 2, ...	6	141	50	45	8	4	180	1	6	33	51	103	283	103	386
Packer No. 3, ...	1	126	57	89	7	4	284	1	10	12	67	89	203	89	292
Packer No. 4, ...	1	86	34	64	14	4	203	1	6	14	54	33	109	33	142
Packer No. 5, ...	2	178	81	90	20	1	372	1	13	16	93	75	200	200	372
Honey Brook No. 4, ...	2	128	84	105	38	23	380	1	9	20	89	129	199	199	328
Honey Brook No. 5, ...	3	58	32	602	21	5	721	1	25	105	105	230	301	301	622
Park No. 2, ...	2	177	132	74	53	...	458	1	11	36	141	68	247	247	705

Springdale, ...	2	99	35	60	27	5	229	1	10	25	104	69	3	212	441
Silver Brook No. 1, ...	1	40	37	30	26	3	137	3	6	15	98	137	3	222	359
Silver Brook No. 2, ...	1	51	18	49	3	1	103	2	8	7	119	87	2	220	323
William Penn, ...	2	139	159	55	25	18	384	3	17	16	117	93	6	252	683
Onelda, ...	2	128	100	52	23	13	373	2	24	29	187	109	2	353	726
Kelley's Run, ...	4	83	10	62	28	3	260	1	7	10	39	52	2	131	291
Buckmountain, ...	1	114	76	23	22	2	238	1	9	15	111	29	4	169	407
Vulcan, ...	1	67	44	11	12	2	137	1	5	11	124	48	8	137	334
Glendon, ...	1	52	35	30	13	4	135	1	3	10	25	36	2	105	240
Primrose, ...	2	76	15	24	19	9	135	3	5	8	48	56	3	112	247
Lawrence, ...	1	68	38	41	14	7	168	1	6	3	36	12	1	146	307
Cambridge, ...	1	16	10	8	3	..	38	1	2	2	16	13	..	35	71
Furnace, ...	1	14	10	7	2	..	34	1	3	1	20	43	2	87	71
Mahanoy Jig House, ...	..	..	..	..	..	..	..	1	3	3	..	33	..	85	..
Yatesville, ...	..	..	..	..	..	..	..	1	7	2	11	60	1	82	82
Totals, ...	156	4,745	2,564	3,949	837	280	12,551	66	479	621	4,822	3,330	105	9,423	21,974

TABLE No. 4.—List of fatal accidents which occurred in the mines of the Sixth Anthracite District for the year ending December 31, 1893.

Date of accident.	Name of Person Injured.	Age.	Married or single.	No. of orphans.	Name of Colliery.	Location—Schuylkill County.	Date of Investigation.	Nature and Cause of Accident in Brief.
Jan. 17.	William Whitechelis, ...	15	. . .	. . .	Maple Hill, ...	St. Nicholas, ...	Jan. 17.	Killed by falling into the scrapers and being drawn around the circuit.
31.	Thomas Stanway, ...	45	M.	. . .	Glendon, ...	Mahanoy, ...	Feb. 1.	Killed by a fall of coal: robbing pillars in the counter four foot vein.
Feb. 11.	Anthony Noyallas, ...	30	M.	1	Bear Run, ...	St. Nicholas, ...	14.	Fatally injured by a fall of slate in West Buck Mount vein; he died on the 14th.
11.	James Dowling, ...	. . .	. . .	. . .	Shenandoah City, ...	Shenandoah, ...	14.	Jumped off the railroad and sprained his foot; died on 25d of July from exhaustion, as was reported to me.
21.	Henry Young, ...	31	M.	4	Boston Run, ...	St. Nicholas, ...	22.	Killed by a fall of coal while preparing to stand a "juggler."
22.	Mike Crickshunas, ...	28	S.	. . .	Maple Hill, ...	do.	22.	Fatally injured by a fall of coal; died in Miners' hospital on the 19th of April.
24.	John Wiley, ...	45	W.	4	Kohinoor, ...	Shenandoah, ...	24.	Killed by a fall of slate and coal culled the "Black Jack;" his buttie had told him to stand back but the fall came before he got away.
24.	James Griffith, ...	36	M.	2	Shenandoah City, ...	Shenandoah, ...	25.	Killed by a fall of clod; he was cutting a leg hole to stand double timber when the fall came.
28.	Stanley Rollin, ...	39	M.	4	Honey Brook No. 4, ...	Andenried, ...	March 1.	Killed by being run over by a car in trying to cross the slope track.
Mar. 7.	George Crook, ...	28	S.	. . .	Bear Run, ...	St. Nicholas, ...	8.	Fatally injured by a fall of coal from rib of breast; died on the 10th in Miners' hospital.
17.	Peter Ungerer, ...	25	S.	. . .	Onelda, ...	Nelson City, ...	22.	Killed by a fall of coal.
18.	Martin G.	. . .	. . .	. . .	Hammond, ...	Grardville, ...	22.	Body strained while at work; died July 30.
19.	Michael Donnelly, ...	28	M.	2	Beard Ridge, ...	Manahoy Plane, ...	20.	Killed by a boiler explosion.
19.	John Donnelly, ...	32	M.	2	do.	do.	20.	Fatally injured by an explosion of dynamite; died on the 26th.
25.	James Joyce, ...	31	M.	3	Packer No. 2, ...	Lost Creek, ...	25.	Fatally injured by an explosion of dynamite; died on the 26th.
Apr. 26.	John Sparrow, ...	27	S.	. . .	William Penn, ...	Shaft, ...	29.	Killed by a fall of coal.
May 1.	John Vingallis, ...	27	M.	1	Pack No. 2, ...	Park Place, ...	24.	Killed by a fall of coal.
3.	Andrew Committis, ...	35	S.	. . .	Packer No. 3, ...	Brownsville, ...	8.	of them exploded, and he, thinking the other had missed, went back when it fired and killed him.
16.	Jacob Plavage, ...	32	M.	3	Maple Hill, ...	St. Nicholas, ...	18.	Killed by a fall of coal: wife and children in Poland.

18,	James Buchanan,	52	M.	7	Ellangowan,	Maple Dale,	19,	Fatally injured between cars and gangway timber; this man was assistant foreman and was assisting the driver to get out a trip of cars when the accident occurred.
19,	Thomas Fletcher,	19	S.	..	Hammond,	Girardville,	22,	Fatally injured by being jammed between cars; died same day.
June 1,	August Patrick,	38	M.	3	Mahanoy City,	Mahanoy City,	2,	Killed by a piece of false slate from roof of vein.
2,	Edward Barratt,	55	M.	7	Packer No. 5 slope,	Rappahannock,	3,	Killed by a fall of coal; he had fired a shot and went back to dress the loose coal down when a piece of timber fell on him.
20,	Jacob Davis,	38	M.	3	Packer No. 4,	Lost Creek,	22,	Fatally injured by an explosion of gas and died on the 21st; went into a breast with a naked lamp. He was chagrenan.
21,	Andy Voberoski,	28	S.	..	Boston Run,	St. Nicholas,	29,	Fatally injured between car and side of tunnel and died on the 21th.
25,	George Medzinek,	24	M.	..	Honey Brook 5,	Audenreid,	28,	Killed; he slipped and fell under the cars; driver.
26,	Hugh McBride,	17	S.	..	Green Mountain,	Audenreid,	23,	Killed; squeezed between car and door-post; driver.
26,	Patrick Dempsey,	18	S.	..	Ellangowan,	Maple Dale,	26,	Killed; bumped between cars while uncoupling; driver.
July 1,	John Ash,	29	M.	2	Girard,	Girardville,	3,	Fatally injured by a fall of coal and died on the 2d in Miners' hospital.
11,	John Powers,	45	S.	..	Maple Hill,	St. Nicholas,	11,	Fatally injured and died on 2d August in Miners' hospital; fall of coal.
12,	Paul Geising,	26	S.	..	North Mahanoy,	Mahanoy City,	14,	Fatally injured by being struck by locomotive; died same day in Miners' hospital.
14,	John Kredashes,	29	M.	..	Bear Run,	St. Nicholas,	19,	Fatally injured by a rush of coal in breast; died in Miners' hospital same day.
Aug. 2,	Mike Broski,	40	M.	..	Shenandoah City,	Shenandoah,	3,	Killed by a fall of coal.
3,	William Shimek,	22	S.	..	Bear Run,	St. Nicholas,	3,	Killed by being squeezed between "buggy" and timber at night.
15,	John Backa,	24	S.	..	Oneida No. 1,	Nelson City,	17,	Fatally injured; he fell on the rail; died same night; a post mortem proved a rupture of one of the blood vessels.
22,	Ulysses Loucks,	28	M.	4	Turkey Run,	Shenandoah,	23,	Fatally injured between car and timber at bottom of slope; died after being taken home; repairman.
Sept. 7,	Andrew Belody,	32	M.	..	Oneida,	Nelson City,	..	Fatally injured and died on the 8th; he was riding on a car under breaker and his head struck against a stringer, fracturing his skull; wife and two children in Hungary.
7,	Patrick McBride,	23	S.	..	Honey Brook 4,	Audenreid,	9,	Killed by being squeezed between car and rib of gangway; he was assisting putting car on track when the car slipped off the blocks.
13,	Anthony Vallage,	47	M.	..	Packer 5,	Rappahannock,	16,	Fatally injured by an explosion of dynamite while charging a hole he was preparing to blast; he died in the Miners' hospital on the 14th.
Oct. 2,	John Leibeg,	15	..	..	Ellangowan,	Maple Hill,	3,	Killed in attempting to jump on a moving car; he slipped off the bumper and the car ran over him; door boy.
6,	John Kadsavage,	33	M.	3	Ellangowan,	Maple Hill,	7,	Killed by a piece of coal rolling down the breast on him.
23,	Anthony Smith, No. 2,	37	M.	..	Mahanoy City,	Mahanoy City,	24,	Killed by a fall of slate and coal called the "black-jack."
30,	Jacob Prismofskie,	28	..	..	Suffolk,	St. Nicholas,	31,	Fatally injured by a fall of top slate and died November 4th.
31,	Stine Sirgie,	30	M.	..	Suffolk,	St. Nicholas,	31,	Killed by a fall of top slate in breast 59, Big Tracey vein counter gangway; vein is about 3 feet thick at this point.

TABLE NO. 4. — *Continued.*

Date of accident.	Name of Person Injured.	Ave.	Married or single.	No. of orphans.	Name of Colliery.	Location—Schnyhill County.	Date of Investigation.	Nature and Cause of Accident in Brief.
Nov. 8,	John Jonoskie, ...	29	M.	1	West Shenandoah, ...	Shenandoah, ...	9	Killed by a fall of top slate while constructing a new turn-out at bottom of new extension of slope.
8,	Mich. Jumbo, ...	26	M.	1	William Penn, ...	Shaft, ...	9	Killed by falling into the machinery of "Monkey" breaker engine, erected under breaker structure to run "monkey" rollers, elevator and screen.
10,	John Bursa, ...	35	M.	2	Honeybrook, ...	Andersfeld, ...	13	He was attending to this machinery. Killed by a fall of coal known as the "leg breaker" immediately above the seven foot or bottom bench of the Mammoth vein.
16,	John Palubim, ...	30	S.	..	East Bear Ridge, ...	Mahanoy plane, ...	18	Killed by a fall of slate and coal.
23,	Alexander Heavy, ...	42	M.	5	West Shenandoah, ...	Shenandoah, ...	24	Killed by a fall of coal in No. 4 breast, East Bottom split.
23,	Anthony Vongrofski, ...	33	S.	..	East Bear Ridge, ...	Mahanoy plane, ...	27	Fatally injured by fragments of material flying from a blast and died in miner's hospital December 7th.
24,	And. McLuskie, ...	22	S.	..	Gilberton, ...	Gilberton, ...	..	Fatally injured by a fall of coal and died in the miner's hospital December 26th.
24,	Anth. Logunus, ...	34	M.	..	Lawrence, ...	Mahanoy plane, ...	29	Fatally injured and died in the miner's hospital on the 24th. He with nine others were being hoisted up the tender slope on the truck built for hoisting men, the truck left the track and he jumped off, falling down the slope forty feet with the above result.
27,	Mich. Catlofskie, ...	40	S.	..	Kohinoor, ...	Shenandoah, ...	29	Killed while being hoisted up the shaft. He with nine others were being hoisted up and he allowed his drill to project beyond the area of cage which came in contact with the shaft timbers throwing him down the shaft a distance of 180 feet. This shaft is 400 feet deep.
Dec.	Adam Shad, ...	50	M.	8	Primrose, ...	Mahanoy City, ...	6	Killed at foot of outside plane. Two Polanders were employed at top of plane, and they pushed a car over the knuckle which ran down the plane killing Shad.
U.	George Turner, ...	45	M.	2	North Mahanoy, ...	Mahanoy City, ...	14	Fatally injured by a fall of coal and died on the 14th.

19,	Joseph Bowen, ...	19	S. . .	Shenandoah City, ...	Shenandoah, ...	27th. Driver.	Fatally injured: fell under a car, and died on the
21,	Enoch Rudnickie, ...	15	. . .	Shenandoah City, ...	Shenandoah, ...	Killed by being drawn in the elevators. This machinery was well fenced off, but this boy must have had much difficulty and took extraordinary risk to get to the place where he lost his life which many of the breaker boys do. Slate picker.	
22,	Jeremiah Leary, ...	40	W. 6	East Bear Ridge.	Mahanoy plane, . .	Killed by a fall of coal at face of East Buckmountain gangway; his body was not recovered until the morning of the 24th. (Sunday). Leary was one of our best practical miners, and had the entire charge of the work he was constructing.	
30,	August Toieto, ...	28	M. . .	Bear Run, ...	St. Nicholas, ...	Killed by an explosion of dynamite which he held in his hand.	
30,	Charles Smith, ...	36	S. . .	Maple Hill, ...	St. Nicholas, ...	Killed by a fall of coal. he had fired a shot, and went to face of breast to dress off the loose coal. His buttty warned him not to back as it was unsafe, but he went back, which cost him his life.	

TABLE NO. 5—List of non-fatal accidents which occurred in the mines of the Sixth Anthracite District for the year ending December 31, 1893.

Date of accident.	Name or Person Injured.	Age.	Married or single.	No. of children.	Name of Colliery.	Location—Schuylkill County.	Nature and Cause of Accident in Brief.
Jan. 6, 7.	Michael White.	20	M.	..	Hammond.	Girardville.	Leg fractured: mule fell on him.
12.	Anthony Seifless.	21	M.	..	Packer No. 3.	Brownsville.	Face severely lacerated by an explosion of dynamite; he was charging a hole with an iron tampering bar which caused the dynamite to explode.
7.	Anthony Brailer.	21	M.	..	Packer No. 3.	do.	Face severely lacerated at the same time with Seifless.
10, 12.	Joseph Loison.	..	..	..	Elmwood.	Mahanoy City.	Four toes cut off by a fall of coal.
19, 23.	Wm. McFulus.	25	M.	..	Hammond.	Girardville.	Fingers blown off; dynamite cap exploded in his hand.
23, 25.	John Spoor.	25	M.	..	Primrose.	Mahanoy City.	Burnt on face and hands by an explosion of gas.
23, 25.	Samm'l Ball.	18	M.	2	Kelleys Run.	Shenandoah.	Head and hand severely hurt; he shortened the snib which caused a premature explosion.
25, 25.	George Kind.	24	M.	..	do.	do.	Slightly bruised on back by a fall of coal.
25, 25.	Michael Bonet.	15	M.	..	Honey Brook No. 3.	St. Nicholas.	Bruised on legs and face; a loaded car ran down on him from No. 4.
17.	Anthony Rulenskie.	33	M.	3	St. Nicholas.	St. Nicholas.	Leg cut off; he took cover off the rolls to clean them and neglected to replace it which was the cause of him falling in.
27.	Wm. Lascho.	23	M.	..	Boston Run.	St. Nicholas.	Small bone of foot fractured and hand cut by a fall of coal.
31.	Nicholas Weber.	50	M.	3	Honey Brook No. 4.	Andenreid.	Legs severely burned by Judson powder; he was fooling with the powder on his legs when his lamp ignited in.
31.	Emil Wendt.	31	M.	..	Glendon.	Mahanoy City.	Body bruised by a fall of coal.
31.	Wash Eisenhower.	25	M.	..	Schuylkill.	do.	Leg fractured: caught between cars.
3.	John Rarlowitsch.	25	M.	..	Kelleys Run.	Shenandoah.	Slightly hurt by a premature blast.
3.	Pat. McGrath.	25	M.	..	Green Mountain.	Andenreid.	Leg fractured between cars.
5.	Thomas Snyder.	32	M.	2	Packer No. 4.	Lost Creek.	Burned on face and hands by an explosion of gas.
6.	Ben. Tancavice.	45	M.	..	Cambridge.	Shenandoah.	Severely bruised by a fall of rock.
8.	Frank Mitchell.	26	M.	..	Packer No. 3.	Brownsville.	Head smashed between car and rib.
8.	George Ruscavage.	26	M.	..	St. Nicholas.	St. Nicholas.	Body severely bruised by a fall of coal.
8.	John Adzema.	46	M.	5	Kol 1' or.	Shenandoah.	Leg fractured; was unloading a car of clay when it overbalanced, falling on him.

11, Mar. 10.	Joseph Anthony, ...	25 M.	1	Oreida No. 1, ...	Nelson City, ...	Body bruised by a fall of coal.
13, ...	Mike Brennan, ...	52 M.	7	Packer No. 3, ...	Brownsville, ...	Severely squeezed between two cars.
10, ...	Mike Kligick, ...	16 S.		St. Nicholas, ...	St. Nicholas, ...	Leg fractured; fell under dumper while unhitching mule.
11, ...	John Shincavage, ...	42 M.	6	Kobinoor, ...	Shenandoah, ...	Leg fractured by a piece of coal rolling on him.
22, ...	Fred. Hutton, ...	40 M.		Boston Run, ...	St. Nicholas, ...	Side of leg fractured; caught between buggy and side of gangway.
22, ...	Wm. Jydoek, ...	38 M.	1	St. Nicholas, ...	do.	Shot in the face; hands by a blast of dynamite.
27, ...	Harvey Descovage, ...	25 S.	2	do.	do.	Head injured; fell down shaft.
31, ...	Lewis Shistel, ...	20 S.		Boston Run, ...	do.	Arm smashed; caught in the monkey rollers while oiling the machinery.
31, ...	Anthony Novitsky, ...	25 S.		Bear Run, ...	do.	Slightly burned on face and hands by an explosion of gas; he failed to take his safety lamp in returning to his place of work.
4, Apr.	John Southall, ...	25 S.		Ellangowan, ...	Maple Dale, ...	Leg fractured by a fall of "hony" coal.
7, ...	Michael Costello, ...	30 S.		Maple Hill, ...	St. Nicholas, ...	Hands and face burned by an explosion of gas.
8, ...	Anthony Suplunskite, ...	24 S.		Knickerbocker, ...	Yutesville, ...	Shoulder and breast bruised between car and side of gangway.
13, ...	Evan Bevan, ...	50 M.		Gilberton, ...	Gilberton, ...	Back and head hurt by a fall of top rock.
13, ...	Daniel Gaughlan, ...	19 S.		Tunnel Ridge, ...	Mahanoy City, ...	Leg cut off; fell in front of a car. He had just taken the place of a driver who was absent for a day.
15, ...	Anthony Skernavitch, ...	26 M.		Maple Hill, ...	St. Nicholas, ...	Slightly burned on face and hands by an explosion of gas.
15, ...	Albert Magie, ...	38 S.		Bear Run, ...	do.	Hand severely cut; fell on a piece of coal.
21, ...	Simon Mezick, ...	26 S.		Turkey Run, ...	Shenandoah, ...	Leg fractured; struck by a piece of coal.
26, ...	James Foley, ...	29 M.	2	Gilberton, ...	Gilberton, ...	Back injured by a premature blast; cause, shortened the squib.
27, ...	John Felsko, ...	23 S.		Honeybrook No. 5, ...	Audenreid, ...	Thumb cut off; car ran over it.
27, ...	Watt Maclevie, ...	35 S.	2	William Penn, ...	Shaft, ...	Leg fractured by a fall of coal.
28, ...	Roderic Frances, ...	27 S.		Draper, ...	Gilberton, ...	Slightly burned by an explosion of gas.
28, ...	Robert Oakum, ...	24 S.		do.	do.	Slightly burned by an explosion of gas.
29, ...	Edmund Stryker, ...	24 S.		Bear Run, ...	St. Nicholas, ...	Slightly injured by a fall of coal.
29, ...	George Mounie, ...	29 S.		do.	do.	Slightly injured by a fall of coal.
May 11, ...	Patrick McNeelis, ...	48 M.	7	Honeybrook No. 4, ...	Audenreid, ...	Small bone of leg broken by a fall of coal.
15, ...	William Hermon, ...	15 M.		St. Nicholas, ...	St. Nicholas, ...	Leg fractured; tried to jump on cars; door boy.
15, ...	John McDeyitt, ...	45 M.		Green Mountain, ...	Audenreid, ...	Small bone of leg fractured by a fall of coal.
17, ...	John Calinslie, ...	33 S.		Turkey Run, ...	Shenandoah, ...	Face and hands burned by an explosion of gas.
17, ...	John Downlick, ...	28 S.		do.	do.	Face and hands burned by an explosion of gas.
19, ...	Anth. Strineck, ...	27 S.		Packer No. 4, ...	Lost Creek, ...	Face and hands burned by an explosion of gas; explosion was Adam Wassel's caution; cause of explosion was the fire boss.
20, ...	William Manolas, ...	26 S.		Draper, ...	Gilberton, ...	Slightly burned by an explosion of gas in new slope air hole.
20, ...	Mike Matulas, ...	28 S.		do.	do.	Slightly burned by an explosion of gas in new slope air hole.
24, ...	Henry Lellig, ...	30 S.		Maple Hill, ...	St. Nicholas, ...	Slightly burned by an explosion of gas.
24, ...	Henry Puddy, ...	28 S.		Kebley's Run, ...	Shenandoah, ...	Head and leg injured by a fall of coal.
25, ...	Henry Maxion, ...	28 S.		Boston Run, ...	St. Nicholas, ...	Face and hands burned by an explosion of gas.
26, ...	Alfonso Riceto, ...	36 M.	3	Honeybrook No. 4, ...	Audenreid, ...	Leg fractured while spragging a car with a bar of iron it went around with the revolving car wheel, striking him on the leg.
26, ...	Alex. Gauman, ...	32 S.		Boston Run, ...	St. Nicholas, ...	Slightly burned on face and hands by an explosion of gas; after firing a shot he returned to work with a naked lamp.
June 3, ...	Patrick Craven, ...	26 S.		Gilberton, ...	Gilberton, ...	Shot by a premature blast; not serious.
5, ...	Charles Welsh, ...	25 S.		Draper, ...	do.	Foot crushed by a rush coal; not serious.

TABLE NO. 5—Continued.

Date of accident.	Name of Person Injured.	Age.	Married or single.	Number of children.	Name of Colliery.	Location.	Nature and Cause of Accident in Brief.
June 3,	Peter O. Nealtus, ...	30	S.	..	Knickerbocker, ...	Yatesville, ...	Face and hands burned: ignited a powder cartridge with his lamp.
3,	George Clark, ...	..	..	..	Girard, ...	Girardville, ...	Leg broken by a fall of coal.
6,	John Shuby, ...	20	S.	..	Bear Run, ...	St. Nicholas, ...	Leg squeezed, caught between two dumpers; not serious.
9,	Frank Sheever, ...	22	S.	..	Maple Hill, ...	do.	Leg broken by a fall of coal.
13,	William Summ, ...	44	M.	..	do.	Gilberton, ...	Ribs fractured by a fall of coal.
15,	Thomas Barnotti, ...	36	M.	1	Gilberton, ...	do.	Head and shoulders injured by a fall of coal; not serious.
17,	John Priavich, ...	35	S.	..	Draper, ...	do.	Leg broken by coal flying from a shot.
22,	Stephen Philipovitch, ...	16	..	..	Honeybrook No. 4, ...	Audenreid, ...	Arm cut off below the elbow; fell into the cog wheels.
27,	Anthony Tregees, ...	33	M.	..	Suffolk, ...	St. Nicholas, ...	Head and leg injured; a piece of coal fell on him which he was barring down.
27,	Sarton Zackelli, ...	25	S.	..	Onelda No. 1, ...	Nelson City, ...	Head and legs bruised by a fall of coal.
July 5,	John Flynn, ...	..	..	..	Knickerbocker, ...	Yatesville, ...	Slightly burned by an explosion of gas.
6,	Samuel Davis, ...	..	..	..	do.	do.	Head and body injured by a fall of coal.
8,	Mike Ezeleski, ...	35	M.	..	Kohinoor, ...	Shenandoah, ...	Collar-bone dislocated and right arm broken by a fall of top slate.
10,	Henry Keller, ...	14	..	..	Shenandoah City, ...	do.	Front part of foot cut off: fell into monkey roller cog wheel.
11,	Anthony Novosotska, ...	28	S.	..	Bear Run, ...	St. Nicholas, ...	Leg broken by a fall of slate.
11,	William Troman, ...	22	S.	..	Turkey Run, ...	Shenandoah, ...	Scalded by steam on head and breast.
11,	Thomas Casey, ...	25	S.	..	do.	do.	Scalded on arms by steam: he was hauling a trip of cars out of tunnel, one of the cars was too high loaded which came in contact with and broke the steam pipes leading to inside engine.
17,	Henry Miller, ...	18	S.	..	Bear Run, ...	St. Nicholas, ...	Arm broken: leg run down by top door of car.
20,	Edward Barusa, ...	15	..	..	Draper, ...	Gilberton, ...	Head and neck struck by top door of car.
21,	Henry Benedel, ...	21	S.	..	Ellangowan, ...	Maple Hill, ...	Laborer: leg injured: was driving and lamp went out: he jumped and fell under car.
24,	John Wann, ...	45	M.	..	Draper, ...	Gilberton, ...	Miner: slightly injured by a shot: while lighting a squib it went off.
28,	William D. Morgun, ...	53	M.	8	Honeybrook No. 4, ...	Audenreid, ...	Engineer: caught in fly-wheel and thrown forward, cutting his head and injuring leg.
29,	Jos. Hummel, ...	..	..	..	Maple Hill, ...	St. Nicholas, ...	Shute boss: head injured: was tightening a bolt and fell twelve feet.

Aug. 3,	William Miles, ...	Gilberton, ...	Gilberton, ...	Miner: slightly burned by gas.
8,	Jos Cram, Pole, ...	Packer No. 3, ...	Brownsville, ...	Miner: severely cut about face and arm broken; did not get far enough away from shot he had ignited.
8,	John Paul, Hungarian, ...	Honeybrook No. 5, ...	Audenreid, ...	Laborer: back injured; truck ran on him.
11,	Jake Rasse, ...	Vulcan, ...		Miner: slightly burned by gas.
11,	Ant. Longarnes, ...	Turkey Run, ...	Shenandoah, ...	Miner: thigh bone broken; killed by a mule.
16,	David Walsh, ...	Maple Hill, ...		Miner: back injured by a fall; explosion of gas.
17,	Frank Fisher, ...	St. Nicholas, ...	St. Nicholas, ...	Miner: face and hands burned by explosion of gas.
18,	William Auckard, ...	Lawrence, ...	Gilberton, ...	Miner: slightly burned by an explosion of gas.
19,	Frank Cook, ...	Spring Dale, ...		Miner: severely burned by explosion of gas; went up to face after firing shot without safety lamp.
19,	George Kobelski, ...	Honeybrook No. 4, ...	Audenreid, ...	Miner: hands and face burned by powder, a spark falling into cartridge from lamp.
22,	John Greese, ...	Knickerbocker, ...	Yatesville, ...	Laborer: body bruised by car running over him on dirt plane.
31,	John Firee, Pole, ...	Honeybrook No. 4, ...	Audenreid, ...	Miner: arm broken by a fall of coal.
Sept 11,	Mike Brudr, Pole, ...	Knickerbocker, ...	Rappahannock, ...	Miner: injured about face and legs by a premature blast.
11,	James Laughlin, ...	Honeybrook No. 4, ...		Laborer: struck by a rail.
13,	Martin McGuinness, Pole, ...	Packer No. 5, ...	Girardville, ...	Lead boss: leg broken; severely lacerated by getting between the friction wheels.
14,	Daniel Reese, ...	Hammond, ...	Audenreid, ...	Miner: leg broken; piece of coal rolled on him.
18,	Dennis Byrne, ...	Honeybrook No. 5, ...	do.	Miner: leg broken; body bruised; fell down shale.
23,	John Solves, Pole, ...	Green Mountain, ...	Nelson City, ...	Bridgeman: arm broken; engine pulled it bent; he was putting up too far, throwing him to the ground.
20,	John Benna, Hungarian, ...	Oneida, ...	Audenreid, ...	Driver: concussion of brain accidentally fell on rail.
22,	William Bovington, ...	Honeybrook No. 4, ...		Miner: jaw-bone broken, struck by coal drill.
22,				Laborer: leg broken and head and face cut by a fall of coal.
Sept. 23,	Daniel Cavanaugh, ...	Girard Mammoth, ...	Girardville, ...	Laborer: leg broken by a piece of coal rolling down chute on him.
26,	Frank Barowskie, ...	do.	Raven Run, ...	Slate-picker; foot severely cut. His coat caught in the line shaft and he was whirled around it.
27,	Joseph Pudlock, ...	Honeybrook No. 4, ...	Audenreid, ...	Driver: leg broken, caught between cars.
Oct. 2,	Ant. Sowanus, ...	Packer No. 3, ...	Brownsville, ...	Miner: arm broken, "Collar" bent on him.
3,	John Lynch, ...	Boston Run, ...	Mahanoy City, ...	Miner: leg broken, fall of coal.
4,	John Gradwell, ...	Turkey Run, ...	Shenandoah, ...	Miner: back injured by a fall of coal.
6,	Christ Shafter, ...	do.	do.	Driver: leg broken by attempting to jump on car and fell under.
9,	George Haup, ...	Park No. 3, ...	Brownsville, ...	Driver: collar-bone broken, squeezed between mine cars.
9,	Aug. Gut-wiski, ...	Suffolk, ...	St. Nicholas, ...	Miner: burned by gas. He and his butt, William Moore, had both fired a shot; face of breasts and Moore returned to the face of the breast and got into the heading and he would go to the battery for dynamite to clear the manway. Munley went to face of breast, with a naked lamp and exploded the gas.
10,	Peter Pesky, ...	Bear Run, ...	do.	Miner: burned about face and hands, unscrewed the gauge from miner's oil cup of safety lamp
9,	James Short, ...	Gilberton, ...	Gilberton, ...	Slate picker. Arm broken; fell off a car.
11,	John Munley, ...	Packer No. 5, ...	Rappahannock, ...	Laborer. Several ribs broken, between cars.
21,	William Patterson, ...	West Shenandoah, ...	Shenandoah, ...	
21,	Andrew Smith, ...	Ellanzowan, ...	Maple Dale, ...	
23,	Wm. Sargeant, ...	Green Mountain, ...	Audenreid, ...	
23,	And. Bakusky, ...			
25,				

TABLE No. 5. — *Continued.*

Date of accident.	Name of Person Injured.	Age.	Married or single.	No. of children.	Name of Colliery.	Location—County.	Nature and Cause of Accident in Brief.
Nov. 8,	John Rearton, ...	..	..	..	Indian Ridge, ...	Shenandoah, ...	Loader boss; leg broken; car jumped the track knocking a set of timber out and one of the legs fell on him.
8,	Mich'l. Rolinsboek, ...	40	M.	2	Honeybrook No. 4, ...	Audenreid, ...	Laborer; skull fractured; he was firing a blast and when a few feet away, blast exploded.
10,	Al. Cluff, ...	..	..	..	Bear Run, ...	St. Nicholas, ...	Car loader; leg bruised under the wheel of a railroad car while coupling.
23,	Geo. Antonavage, ...	29	S.	..	Ellangowan, ...	Mapledale, ...	Miner; seriously injured about the body by a fall of top coal.
23,	Jas. Yneufski, ...	28	M.	..	Ellangowan, ...	Mapledale, ...	Miner; seriously injured about the body by a fall of top coal.
23,	Andy McLuskie, ...	22	S.	..	Gilberton, ...	Gilberton, ...	Laborer; back seriously injured; said to be broken by a fall of coal.
Dec. 5,	John Lawlor, ...	17	S.	..	Packer No. 4, ...	Lost Creek, ...	Driver; leg seriously hurt; he may lose his foot, as went over it. He slipped from the car in trying to get on it.
6,	John Rapch, ...	35	..	..	Primrose, ...	Muhlenoy City, ...	Laborer; leg fractured by a piece of slate falling on him.
9,	Ed. Toobey, ...	..	..	..	Maple Hill, ...	St. Nicholas, ...	Miner; face and hands burned by an explosion of gas, caused by a defective safety lamp.
16,	Andro Dipeon, ...	24	S.	..	Honeybrook No. 5, ...	Audenreid, ...	Laborer; leg broken; a lump of clay rolled on him at the No. 1 stripping.
20,	Frank Solinsky, ...	30	S.	..	Maple Hill, ...	St. Nicholas, ...	Miner; leg broken; fall of slate.
21,	Mat. McAtee, ...	40	M.	P2	Tunnel Ridge, ...	Muhlenoy City, ...	Miner and two laborers; slightly burned by an explosion of gas. While taking down top coal in order to stand a set of timber, a fall occurred bringing the gas down on the naked lamps of laborers.
21,	John Beckler, ...	30	M.	1	do, ...	do, ...	
21,	Frank Fitzvige, ...	23	S.	..	do, ...	do, ...	
30,	Mike Macksonfski, ...	22	S.	..	Bear Run, ...	St. Nicholas, ...	Loader; face and leg injured by an explosion of dynamite in the hands of August Toletto, who died from injuries from the same explosion.

SEVENTH ANTHRACITE DISTRICT.

(NORTHUMBERLAND, COLUMBIA, SCHUYLKILL AND
DAUPHIN COUNTIES.)

Shamokin, Pa., March 19, 1894.

Hon. Thomas J. Stewart, Secretary of Internal Affairs:

Sir: In accordance with section 9, article 2 of the Anthracite mine law of Pennsylvania, I have the honor to present the following report for the Seventh Anthracite district for the year 1893. It contains all the usual tabulated statistics, and brief accounts of the more important occurrences during the year, and also makes brief mention of the principal improvements.

The quantity of coal produced during the year was, 5,288,890.88 tons; against 5,464,678.85 tons in 1892. A decrease of 175,787.97 tons.

The number of fatal accidents was, 77. An increase of 32 over the preceding year.

The number of non-fatal accidents was 119. Being 18 more than for the previous year.

The number of wives left widows is 24, and of children under 21 years of age left fatherless 66.

The number of fatal accidents was greatly augmented by the disaster at the Neilson colliery, an account of which is appended. But leaving this aside the increase in fatal accidents was alarming. Aside from some few cases where it can be said the accidents were largely due to carelessness of the persons themselves, no good reason can be adduced for so great an increase. They can only be accounted for by an unfortunate series of circumstances which at times visit communities, and which it seems cannot be avoided no matter how great the care or caution exercised.

Respectfully submitted,

EDWARD BRENNAN,
Inspector of Mines.

CONDITIONS OF THE COLLIERIES.

The general condition of the collieries in the district will compare very favorably with the condition at any previous time. This is largely due to the fact of the year 1892 having been a good coal year. The more steadily the collieries work, the more money can be spent

in general repairs, and making substantial improvements, while on the other hand, dullness in trade and the consequent falling off in production, leads to a cutting down of expenses, which at times render the general condition of the collieries what they would not otherwise be.

One thing must be said concerning this retrenchment, and that is, it should never be allowed to be carried to such an extent as to endanger human lives.

EXAMINATION OF APPLICANTS FOR CERTIFICATES OF QUALIFICATION FOR MINE FOREMEN.

The examination was held at Pottsville on June 7 and 8, 1893.

The board consisted of Edward Brennan, inspector, Shamokin; Andrew Robertson, coal operator, Shamokin; John Mentzer and William McKechney, miners, Shamokin.

The following persons were recommended by the board to the Secretary of Internal Affairs for certificates of qualification, viz:

William Lewis, Girardsville.

C. L. Steiner, Girardsville.

James Wilson, Locust Dale.

James Morgan, Mount Carmel.

Thomas H. Thomas, Mount Carmel.

Richard Howells, Mount Carmel.

John Howells, Hickory Ridge.

Charles J. Price, Lykens.

Walter Reese, Williamstown.

Ebenezer Williams, Williamstown.

Thomas Ennis, Centralia.

Christopher Rooney, Centralia.

Nathan Hoodamer, Mid Valley.

Patrick Finn, Shamokin.

PRINCIPAL IMPROVEMENTS MADE AT THE VARIOUS COLLIERIES DURING THE YEAR. UNION COAL COMPANY.

The new Richards colliery at which work was begun in July, 1892, began shipping coal in June, 1893. Two slopes have been sunk on the lower split of the Mammoth or No. 8 seam, to a depth of 810 feet or two lifts; the one slope having a single track, is used as a tender slope, also to raise coal from the first level; the second being a double track slope, will be used to hoist from the lower level. The workmanship on these slopes is certainly first-class. A large breaker was built, from which the superintendent John L. Williams promises to ship two thousand tons a day, when the mine is opened to its full capacity.

At the Pennsylvania colliery, a new slope has been sunk through

the old workings to a point 300 feet below the bottom of the present South slope. This slope will open a new lift in the South basin. Two rock planes were also driven, one from the No. 9 to the No. 10 seam in the South slope, and another from the 9 to the 9½ in the No. 1 slope.

At Hickory Ridge a slope was sunk on the No. 4 or Buck Mountain seam, a distance of 660 feet. The seam at this place is of the average thickness of seven feet and of a very good quality.

At Hickory Swamp the breaker was completely remodeled and its capacity greatly increased. Work has also been commenced on the new Scott colliery. Two shafts are being sunk, one of which is now down 100 feet. This shaft will be 31 feet by 12 feet in the clear, inside of the timbers, and will have four compartments 7 feet by 12 feet each. Work on the second shaft will be commenced shortly.

MINERAL RAILROAD AND MINING COMPANY.

This company completed a rock slope 1,400 feet in depth at the Cameron colliery, and is sinking a shaft at the Luke Fidler colliery, which is 27 feet 6 inches by 12 feet in the clear. It has three 7-foot and one 4-foot opening. Its total depth on January 1st was 340 feet. It will be sunk to the depth of 950 feet.

NEILSON DISASTER.

The accident, which was attended by the greatest fatality of the year, and in fact the greatest fatality which has occurred in the history of mining in this district, and in which ten lives were lost, occurred in Neilson shaft, operated by J. Langdon & Co., on the morning of April 1st. The shaft bottom being wet, kerosene is used for the torches. Whilst filling a torch, or in pouring oil on the wick to make a better blaze, a can of oil in the hands of the bottom-man on the No. 10 seam level, exploded, setting fire to the oil-shanty and timbers on the turnout. As the mine is very dry, with the exception of a few feet surrounding the shaft, the flames spread rapidly, and in a few moments the smoke had traveled up the No. 10 air-way, to a tunnel connected with No. 11 seam, cutting off and smothering ten men, who were working in this seam. Everything possible was done to rescue them, but when the bodies were reached, after two hours of hard and heroic work, life in each case was extinct.

The following is a copy of the verdict rendered by the coroner's jury, which, as will be seen, exonerated the company from all blame.

"We, the jury empannelled to hold an inquest over the dead bodies of John Bart, Frank Shukes, Joe Bartoskie, Noah Geary, Ferdinand Ginter, Nicholas Dehouaint, John Vrabel, John Ryan, Patrick Brennan and Michael Brennan, miners and workmen who lost their lives in the No. 11 or Red Ash vein on the North dip, West gangway at

the Neilson colliery, Saturday morning, April 1st, 1893, between the hours of 7 and 8 o'clock on said day and morning, find from all the evidence and information gained from twenty odd witnesses, that the aforesaid men lost their lives from inhaling smoke caused by a fire in a shanty in the No. 10 vein at the bottom of the shaft, said fire having been caused by the filling of a lamp with torch oil; in the hands of John Orbitzkie, from a can said to have contained from a half to a gallon of said oil, which by the dangerous custom of pouring or squirting oil from the can on the wick of the said lamp in his hands when lit, ignited fire in said shanty, and from all the evidence and the then existing circumstances, believe it was impossible to save their lives."

(Signed)

FREDERICK D. BAKER, Coroner,
JOHN J. W. SCHWARTZ, Foreman,
DANIEL EISENHART,
ADAM F. SHUEY,
JOHN B. LOVETTE,
A. F. YOCUM,
WILLIAM M'KECHNEY.

As soon as the bodies were recovered, in order to extinguish the flames, which were spreading rapidly, all the colliery openings were sealed, as it was thought that by such method the fire could best be extinguished. After remaining sealed for a month, and when all the indications seemed to prove that no fire remained, the main shaft was opened, but it was soon discovered, from some explosions which took place, that the fire was still burning. Preparations were at once made to flood the mine by turning a creek which is close by in to it and on May 6 this was done. The water was allowed to fill to a point 20 feet above the No. 11 seam, as it was supposed the fire had not reached above this point. After allowing the water to remain for about four weeks, it was lowered so as to permit an examination of this seam. On doing so, it was found that a "Feeder" of gas was burning in the roof of the No. 11 tunnel. The creek was again turned in and water allowed to remain until the eleventh day of July, when the work of removing water was again begun. When this was accomplished, it was found that the damage done by the fire and water was considerable. Operations were resumed at the colliery on November 6, 1893.

FIRE AT PENNSYLVANIA COLLIERY.

On June 15 a disastrous fire broke out in breast No. 26, East No. 9 gangway, counter workings, in Pennsylvania colliery, operated by the Union Coal Company. When first discovered, it was burning in the schute, and after considerable effort it was supposed to have been extinguished, as it was thought not to have gotten above the brattice separating the air-way from the gangway, but later it was found to

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SHAFT COUNTER

Pennsylvania Colliery.

Shamokin Pa. Mar. 15, 1894. Scale 200 ft to inch.

U.H. PRICHARD. ENGINEER.



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have gotten above this point, and was burning fiercely. Everything possible was done to extinguish it, but as this part of the mine is very gaseous, and as several explosions occurred which endangered the lives of the men who tried to subdue it, the officials of the company decided that it would be unsafe—considering all the conditions—to fight the fire any further, and that some other means must be employed for its extinguishment. After a great deal of discussion between the officials of the company and mine experts who were called in to assist, it was decided to wall off the portion of the mine which was on fire from the rest of the workings, and allow the fire to die out for lack of oxygen. To do this it was necessary to erect four dams or walls (see map) in the opening between the South and North dip workings, and by allowing the water to raise above these walls, the workings would be entirely separated, and work in the other parts of the colliery could be continued with safety. The dams were built under the supervision of Mr. John L. Williams, superintendent, and pipes to which valves were attached, were inserted in the walls, so as to allow the water to raise to any height which might be thought necessary. As soon as this was done the colliery resumed work. No examination has since been made to ascertain whether the fire is extinguished or not, but Mr. John L. Williams is firmly of the opinion, from observations made by himself at an air shaft (see map) connecting with the district on fire, that it is extinguished. The opening of the burning district will be looked forward to with interest by mine men generally.

DESTRUCTION OF MID VALLEY BREAKER BY FIRE.

On June 16 the breaker of the Mid Valley Coal Company, near Mount Carmel, was entirely destroyed by fire, the origin of which is unknown. Work was immediately begun on a new structure and the work pushed so rapidly, that shipments were resumed on November 6th.

DETAILS OF FATAL ACCIDENTS.

The following are the details of such fatal accidents as seem worthy of special mention:

March 17, Daniel Deeter, a driver, was killed at the bottom of No. 3 slope, Cameron colliery, by being squeezed between a prop and a wagon through his own carelessness, as there was no necessity for his being in front of the wagon.

March 17, Peter Stashetskie was killed at Enterprise colliery by a fall of top coal while timbering a gangway. He was assisting in cutting out two sets of old timber to make room for some new, and while so doing, a piece of top coal fell on him, killing him instantly.

March 24, William Penamont, a miner, working in No. 10 vein, Neilson shaft, was burned and injured by a premature explosion of a shot, his arm having been blown off. He died at the Miners' Hospital a few days later.

March 25, Edward Mark, a door-boy at Short Mountain colliery, together with several miners, was on his way home. After walking from No. 2 lift to No. 1, they sat down to rest in the gangway. Another miner happened to join them at this point, noticed, and remarked that the rock hanging over them looked dangerous. Discovering that this was so, the party, with the exception of the boy, immediately moved on. He, however, got excited and tarried a moment too long, when the rock fell on him, killing him instantly.

April 4, Thomas Jenkins, drill sharpener and pumpman at Stirling colliery air shaft, was killed by an explosion of gas. There were two parties of men sinking the shaft, one party working at night and the other during the day. Contractor Whennen left orders in the morning, after the night men had gone home, that no one was to venture down the shaft without a safety lamp, as a leader of coal had been struck by the last blast fired, and was giving off gas. The day shift went down and worked until 9 o'clock A. M. When they came up, they met Jenkins getting into the bucket at the top of the shaft, with a naked light, and John Crowell, one of the men, told Jenkins that he must not go down with a naked light, as there was too much gas below. He extinguished his light and procured a safety lamp, went down the shaft and pumped out the water, then returned to the shop and began sharpening drills. At about noon, when the miners had their round of holes drilled, John Crowell came up to get some dynamite to charge them, when Jenkins, as was customary before the charges were fired, went down again to pump out the water. He forgot, however, the orders which were given him in the morning, and used a naked light, which fired the gas, causing an explosion, which sent the bucket, in which he was descending, fifteen feet above the top of the shaft. The mystery is to know how he escaped falling down the shaft, as he was found a few minutes afterwards by Matthew Lambert, engineer, he being three feet from the top of the shaft on the ladders. When Lambert helped him up, Jenkins ran to a barrel near by, and plunged into the water which it contained. He was burned so badly that he died the next morning.

April 8, Simon Boroskie, a stranger, was taken into the Corbin colliery by a miner named Joseph Bilskie, for the purpose of viewing the manner of mining coal, as he had never been in a mining region before. Bilskie was working in the face of his breast, and Boroskie was sitting about twelve feet from him, under a small piece of coal projecting from the rib. This suddenly, and without warning, fell upon him, striking his head and causing death.

April 14, Tobias Miller, a miner, while taking out pillars at Reliance colliery, was killed by a piece of top coal, five feet long by four feet wide falling on him, while he was in the act of standing a prop under it.

May 8, Julius Brauer, a miner at Short Mountain colliery, was preparing to take down slate, and had been warned by those working with him that the undertaking was dangerous and the slate liable to fall at any time; but regardless of the warnings, he continued to pry at it until it fell, killing him instantly.

May 12, Thomas Kenny, a miner, working a breast at Williamstown colliery, was breaking a lump of coal at the top of the chute. He succeeded in breaking it, but it fell upon him, carrying him down the chute for a distance of twenty yards, when his head came in contact with a prop, killing him instantly.

May 18, Adam Scheese, a miner, who was driving a gangway at the Corbin colliery with his laborer, was trying to bar down a piece of top coal which was too strong to break. The miner went back to his tool chest to get a wedge, but while on this errand the laborer succeeded in barring the piece down. When Scheese returned, he examined the place carefully, and thinking everything safe, turned to speak to his laborer, when a "Bell" shaped piece fell from the top, killing him instantly.

June 23, Thomas Williams, mine foreman at the Richards colliery, was killed on the evening of the above date by being struck by a sinking car running down the slope as he was being lowered to the bottom. The sinking car was caught by the slope rope 95 feet from the knuckle, where it had been shifted and left standing on the turnout too close to the main track. This accident should not have occurred, and would not have happened had there been competent instead of incompetent men in charge at the head of the slope. There were four men on duty at this point on this particular evening, and it seems that neither of them knew what they were hired for, nor could they tell what they were expected to do. The car could have been stopped in its course, by any one of the men pulling the bell wire and signaling the engineer to stop the engines, or by placing the safety blocks in position, but to show how utterly demoralized and incompetent they were, instead of pulling the bell wire, one of them rushed in front of the sinking car while it was in motion and while the rope still held it, thinking his strength would be sufficient to hold it back. The superintendent or outside foreman should have used more judgment, and placed a competent man in charge of the top of the slope at night.

July 21, Charles M'Mullen and George M'Mullen, miners, while driving a manway in a pillar at Williamstown colliery, drove through the pillar about fifteen feet from the face of the breast. After doing

this, they sent for the foreman, Mr. Zerbe, who made a thorough examination and reported "No gas there." The men started to timber along the rib to get to the face of the breast, when a piece of coal rushed from the face of the breast, bringing gas with it, which came in contact with the naked lights of the miners, and resulted in one being burned to death, and the other so badly burned, that death resulted at midnight of the same day. Before dying, George M'Mullen corroborated the statement of foreman Zerbe. More care should have been exercised in the use of naked lights in old workings.

TABLE A.—*Comparative statement of fatal casualties from various causes which occurred during the years 1891, 1892 and 1893.*

	1891.	1892.	1893.
Explosions of fire damp, ...	6	7	5
Falls of coal and roof, ...	23	16	30
Mine cars and machinery, ...	13	10	15
Falling down slopes and shafts, ...	2	3	.....
Breaking of ropes and chains, . . . . .	.....	1	.....
Explosion of blasting materials, ...	3	5	8
Suffocated by mine gases, . . . . .	.....	.....	.....
Kicked by mules, . . . . .	.....	.....	1
Miscellaneous, ...	9	3	18
Total, ...	56	45	77

TABLE B.—*Showing number of tons of coal mined by each company, number of fatal casualties and number of tons mined for each fatality.*

	Tons mined.	Deaths.	Tons mined per death.
Philadelphia and Reading Coal and Iron Company, ...	2,181,004.64	22	99,136.57
Mineral Railroad and Mining Company, ...	579,251.85	8	72,406.48
Summit Branch Railroad Company, ...	640,723.17	14	45,765.94
Lykens Valley Coal Company, . . . . .	.....	.....	.....
The Union Coal Company, ...	484,016.28	7	69,145.18
L. A. Riley & Company, ...	334,633.32	5	66,927.26
Individual companies, ...	1,069,258.62	21	50,917.08
Total, ...	5,283,890.88	77	68,686.89

TABLE C.—*Showing the comparison of non-fatal accidents for the years 1891, 1892 and 1893.*

	1891.	1892.	1893.
Falls of coal and roof, ...	48	33	42
Explosions of fire damp, ...	22	16	16
Mine cars and machinery, ...	45	27	37
Explosion of blasting materials, ...	17	5	9
Kicked by mules, . . . . .	.....	2	1
Miscellaneous, ...	23	15	14
Total, ...	155	101	119

Table D.—*Showing comparison of the quantity of coal shipped, the estimated quantity used and sold at collieries, and the total production for the years 1891, 1892 and 1893.*

	1891.	1892.	1893.
Quantity of coal shipped, ...	5,009,505.61	5,142,605.40	4,968,273.27
Quantity of coal used at collieries, ...	311,538.97	322,073.45	320,617.61
Number of tons of coal produced, ...	5,321,044.58	5,464,678.85	5,288,890.88

Table E.—*Showing general comparisons between the years 1891, 1892 and 1893.*

	1891.	1892.	1893.
Number of persons employed, ...	18,415	18,437	19,179
Number of tons of coal mined per life lost, ...	95,018.65	121,437.31	68,686.89
Ratio of employes per life lost, ...	328 $\frac{1}{2}$	409 $\frac{1}{2}$	249 $\frac{1}{2}$
Number of tons of coal mined per person injured, ...	25,218.22	54,105.73	44,444.46
Tons of coal mined per employe, ...	288.95	296.39	275.76

Table F.—Showing the number of persons employed by the several companies and the number of deaths.

	Number of deaths.	Number of employees.
Philadelphia and Reading Coal and Iron Company, ...	22	7,959
Mineral Railroad and Mining Company	8	1,956
Summit Branch Railroad Company, ...	14	2,004
Lykens Valley Coal Company, ...	7	2,296
The Union Coal Company, ...	5	1,043
L. A. Riley & Company, ...	21	3,831
Individual collieries, ...	77	19 179

TABLE No. 1—Showing location, &c., of collieries in the Seventh Anthracite District for the year ending December 31, 1893.

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Postoffice Address.
Alaska, ...	Philadelphia & Reading Coal and Iron Co., ...	Northumberland, ...	John Veith, ...	Pottsville.
Reliance, ...	do.	do.	do.	do.
North Ashland, ...	do.	Columbia, ...	do.	do.
Basf, ...	do.	Schuylkill, ...	do.	do.
Tunnel, ...	do.	do.	do.	do.
Keystone, ...	do.	do.	do.	do.
Potts, ...	do.	do.	do.	do.
Merriam, ...	do.	Northumberland, ...	do.	do.
Monitor, ...	do.	do.	do.	do.
Locust Gap, ...	do.	do.	do.	do.
Locust Spring, ...	do.	do.	do.	do.
Blue Ridge, ...	do.	do.	do.	do.
Blue Mountain, ...	do.	do.	do.	do.
Peerless, ...	do.	do.	do.	do.
Henry Clay, ...	do.	do.	do.	do.
Burnside, ...	do.	do.	do.	do.
Bear Valley, ...	do.	do.	do.	do.
North Franklin, ...	do.	do.	do.	do.
Preston No. 2, ...	do.	Schuylkill, ...	do.	do.
Preston No. 3, ...	do.	do.	do.	do.
Locust Run, ...	do.	Columbia, ...	do.	do.
Midvalley No. 1, ...	Midvalley Coal Co., ...	Northumberland, ...	do.	do.
Midvalley No. 2, ...	do.	do.	Frank G. Clemens, ...	Mount Carmel.
Pennsylvania, ...	The Union Coal Co., ...	do.	do.	do.
Richards, ...	do.	do.	John L. Williams, ...	Shamokin.
Hickory Ridge, ...	do.	do.	do.	do.
Hickory Swamp, ...	do.	do.	do.	do.
Excelsior, ...	do.	do.	do.	do.
Corbin, ...	Excelsior Coal Co., ...	do.	Andrew Robertson, ...	Pottsville.
Lancaster, ...	do.	do.	do.	do.
Lake Erie, ...	Mineral R. & Mining Co., ...	do.	Morris Williams, ...	Shamokin.
Lykens, ...	do.	Columbia, ...	do.	do.
Centralia, ...	Lewis A. Riley & Co., ...	do.	Edward Keese, ...	Centralia.
Williamstown, ...	do.	Dauphin, ...	do.	do.
Short Mountain, ...	Summit Branch R. R. Co. & Lykens Valley Coal Co., ...	do.	T. M. Williams, ...	Lykens.
Nelson, ...	do.	Northumberland, ...	do.	do.
Enterprise, ...	J. Langdon & Co., Incorporated, ...	do.	Harry S. Gay, ...	Shamokin.
Mount Carmel, ...	Enterprise Coal Co., ...	do.	J. O. Hopkins, ...	Excelsior.
Morris Ridge, ...	Thos. M. Righter & Co., ...	Columbia, ...	Thomas M. Righter, ...	Mount Carmel.
Columbus No. 1, ...	May, Troutman & Co., ...	do.	James May, ...	do.
Columbus No. 2, ...	Shaefer, Bickel & Co., ...	do.	Tobias Bickel, ...	Mount Carmel.
Continental, ...	E. E. White & Alfred White, ...	Northumberland, ...	E. E. White, ...	do.
Colbert, ...	Lehigh Valley Coal Co., ...	Columbia, ...	Col. D. P. Brown, ...	Lost Creek.
Fennell, ...	Shipman Coal Co., ...	Northumberland, ...	George S. Comstock, ...	Shamokin.
Patterson, ...	Phillips, Nagle & Co., ...	do.	Maj. E. J. Phillips, ...	Mount Carmel.
	Penn Anthracite Mining Co., ...	do.	H. Vincent, ...	Natalie.

TABLE NO. 2.—Gives the total number of tons of coal mined in each colliery, number of days worked, number of employees, number of persons killed and injured, number of kegs of powder used, &c., in the Seventh Anthracite District for the year ending December 31, 1893.

Names of Collieries.	Location.	Total production in tons of coal.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.	Number mine locomotives.	Pounds of dynamite used.
Alaska.	Northumberland county,	245,347.10	220,586	202.65	622	.	3	7,246	38	88	..	2,073½
Reliance.	do.	128,790.08	119,103	164.65	490	.	.	3,964	24	48	..	123
North Ashland.	Columbia county,	145,542.06	133,362	136.45	457	1	2	2,400	40	43	1	3,573½
Bast.	Schenykill county,	120,088.18	113,038	135.85	616	.	.	1,335	46	57	..	11,550
Tunnel.	do.	.	.	137.35	38	.	.	.	.	.	..	227
Keystone.	Columbia county,	28,945.16	27,336	157.35	168	.	.	1	12	4	..	..
Potts.	do.	145,576.13	138,787	87.95	524	.	.	86	31	15	..	4,915
Merriam.	Northumberland county,	145,576.13	138,787	200.45	320	1	6	2,863	39	55	..	4,821
Monitor.	do.	71,672.11	67,032	190.65	458	2	.	1,489	16	30	..	1,911½
Locust Gap.	do.	201,943.12	190,932	206.95	458	.	.	3,381	22	40	1	2,372
Locust Spring.	do.	124,462.07	117,155	197.35	557	3	3	4,700	32	65	1	1,616½
Big Mountain.	do.	40,743.09	36,687	159.80	258	2	2	612	24	17	..	1,751
Peerless.	do.	.	.	.	503	3	4	5,678	24	..	..	10,845
Henry Clay.	do.	442,149.08	442,810	212.20	673	1	.	1,947	36	191	2	3,321
Sterling.	do.	.	.	.	392	3	.	2,697	20	..	..	3,230½
Burnside.	do.	213,442.06	207,472	194.45	782	3	13	4,148	16	74	..	5,925
Bear Valley.	do.	99,412.02	95,135	184.90	372	1	2	2,785	34	44	1	3,111
North Franklin.	do.	117,149.08	113,280	202.45	375	1	1	2,545	25	37	..	3,501
Preston No. 2.	Schenykill county,	.	.	182.85	331	.	.	20	14	3	..	5
Preston No. 3.	do.	54,676.16	51,574	182.85	371	.	.	174	31	21	..	11,226
Locust Run.	do.	.	.	.	8	.	.	.	15	..	..	..
Midvalley No. 1.	Columbia county,	89,846	82,749.01	113.30	345	.	1	2,354	15	1	1	14,400
Midvalley No. 2.	do.	.	.	305	47	.	.	8,568	3	36	..	4,500
Pennsylvania.	Northumberland county,	226,530.08	216,340.08	241.40	840	4	13	8,933	42	103	2	10,550
Richards.	do.	28,143.06	23,478.25	241.25	362	2	2	3,911	4	13	..	3,421
Hickory Ridge.	do.	147,147	133,947	214.25	600	1	9	3,898	26	52	..	3,949
Hickory Swamp.	do.	81,336.11	74,596.11	152	371	.	4	1,996	13	38	..	2,889

Excelsior, ...	do.	177,761.12	172,544.02	247.10	446	1	...	4,800	26	54	1	1,900
Condon, ...	do.	3,684.16	17,661.12	247.80	1,771	2	...	3,300	7	15	...	1,200
Condon, ...	do.	886,693.15	357,133.13	247.80	1,707	4	...	14,730	49	113	2	13,761
Luke Fidler, ...	do.	192,643.70	198,183.70	181.90	504	4	...	4,352	20	47	...	12,162
Loran, ...	do.	148,824.18	170,850.18	173.70	598	1	...	4,730	32	39	1	3,630
Centralia, ...	do.	186,312.14	170,850.14	305	598	1	...	4,133	20	39	1	3,600
Williamstown, ...	do.	336,928.01	330,270.16	303	1,051	10	15	7,143	94	157	5	14,348
* Short Mountain, ...	do.	293,795.16	293,833.01	303	1,043	4	9	3,451	77	117	...	14,348
Nelson, ...	do.	42,824.01	41,911.10	106	475	12	2	1,500	19	40	...	4,000
Enterprise, ...	do.	118,731	108,971	228	349	3	...	3,350	27	32	3	6,550
Mount Carmel, ...	do.	40,503.66	38,574.12	179.40	199	...	...	1,202	33	24	2	4,060
Morris Ridge, ...	do.	49,131.04	40,131.04	188.20	186	...	1	1,067	18	19	...	1,500
Columbus No. 1, ...	do.	48,803.02	48,424.12	89.40	373	...	...	1,631	19	31	...	2,900
Columbus No. 2, ...	do.	...	...	...	...	...	...	...	...	...	...	...
Continental, ...	do.	...	...	...	...	...	...	...	...	...	...	...
Colbert, ...	do.	66,815.09	66,515.09	268.25	156	1	...	1,900	3	23	...	2,000
Ferndale, ...	do.	32,786.12	46,673.03	240.20	153	...	...	1,375	10	17	...	3,700
Patterson, ...	do.	300,494	253,573	212	952	2	2	6,752	12	49	1	200
Total, ...	...	5,288,892.88	4,908,273.27	7,569.20	19,197	77	119	131,436	1,090	1,989	32	196,452

* Consolidated with Henry Clay.

TABLE NO. 3.—Showing the number of employees at each colliery in the Seventh Anthracite District during the year 1893.

Names of Collieries.	Occupation of Persons Employed Inside.						Occupation of Persons Employed Outside.								
	Inside foremen.	Miners.	Miners' laborers.	All company men.	Drivers and runners.	Door boys and helpers.	Total inside.	Outside foremen.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	All other company men.	Superintendents, bookkeepers and clerks.	Total outside.	Grand total inside and outside.
Alaska.	3	213	37	94	32	13	392	1	17	15	112	200	1	230	622
Reliance.	4	397	21	33	20	6	281	1	6	12	118	70	2	209	490
North Ashland.	4	493	5	131	11	10	431	1	6	15	121	58	2	203	634
East.	9	131	20	162	20	22	364	1	5	17	146	81	2	232	616
Tunnel.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Keystone.	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Potts.	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Merrim.	6	125	65	121	20	11	359	1	3	12	97	53	1	97	168
Monitor.	3	77	25	77	9	4	195	1	13	4	66	49	1	163	322
Locust Gap.	6	142	24	67	12	8	259	1	5	14	109	78	2	209	320
Locust Spring.	6	197	14	102	20	4	343	2	8	15	115	73	1	214	468
Buck Ridge.	4	92	16	43	3	6	164	1	4	13	47	28	2	94	357
Big Mountain.*	7	294	46	92	57	7	503	..	..	..	..	..	..	..	503
Peerless.*	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Henry Clay.	3	60	25	53	25	2	168	3	19	24	254	200	5	305	673
Sterling.*	3	167	41	121	11	3	346	1	4	8	124	52	1	46	363
Burnside.	4	242	103	114	33	14	510	1	16	13	83	114	2	200	712
Bear Valley.	4	106	20	60	18	6	214	1	4	13	83	96	1	200	332
North Franklin.	4	95	22	43	10	1	175	1	11	2	9	49	1	3	377
Preston No. 2.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Preston No. 3.	5	57	22	80	8	7	179	1	5	14	76	55	1	152	331
Locust Run.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Midway No. 1.	1	98	25	48	12	8	187	1	1	6	65	72	..	84	343
Midway No. 2.	1	1	1	1	1	1	30	1	1	1	1	1	..	17	47
Pennsylvania.	1	252	120	162	50	20	630	1	8	24	80	140	..	255	860
Richards.	1	106	150	100	10	2	293	1	10	10	89	90	2	193	462
Richory Ridge.	1	156	49	147	23	8	394	1	7	15	97	84	2	206	600
Richory Swamp.	1	100	40	75	6	6	238	1	1	8	66	60	..	136	374
Keelson.	4	145	84	54	22	3	312	2	1	8	66	49	2	134	446
Corbin.	2	60	28	5	8	..	103	1	2	4	37	23	1	68	171

Cameron.	7	447	74	246	59	34	867	1	15	25	159	137	3	340	1,207
Lake Fidler.	4	195	80	198	43	12	532	1	14	20	188	91	3	217	749
Logan.	2	130	30	78	17	16	253	1	8	17	121	70	3	221	504
Centralia.	2	133	32	90	22	15	310	1	11	14	120	79	4	229	539
Wheatstown.	5	293	145	145	53	14	749	3	16	37	181	100	4	302	1,051
Short Mountain.	5	293	145	145	53	25	749	2	16	39	181	106	3	337	1,043
Nelson.	2	220	103	140	20	3	359	2	6	14	40	30	4	116	475
Enterprise.	2	89	24	26	5	3	247	1	6	7	53	36	3	102	349
Mont Carmel.	2	59	25	5	5	...	91	...	5	7	33	23	3	178	136
Morris Ridge.	1	31	24	46	12	...	107	...	3	10	38	23	3	72	136
Columbus No. 1.	4	134	40	61	12	6	257	1	6	9	51	46	3	116	373
Columbus No. 2.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Continental.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Colbert.	1	60	18	8	15	3	105	1	3	3	20	14	1	42	147
Ferdale.	1	60	15	19	8	2	91	1	3	6	30	20	2	62	153
Natalie.	2	175	190	31	52	10	460	1	14	11	88	362	6	632	942
Grand total.	133	5,565	1,992	3,204	887	302	12,083	46	320	527	3,151	2,961	91	7,096	19,179

* Consolidated with Henry Clay.

TABLE NO. 4. — *List of fatal accidents which occurred in the mines of the Seventh Anthracite District for the year ending December 31st, 1893.*

Date of accident.	Name of Person Injured.	Age.	Martred or single.	Number of orphans.	Name of Colliery.	Location—County.	Nature and Cause of Accident in Brief.
1892.							
Dec. 23,	Joseph Novocaski, ...	42	M.	..	Burnside, ...	Northumberland,	Cut and bruised about the head; died Jan. 2.
1893.							
Jan. 5,	Jesse M. Bamford, ...	15	S.	..	Buck Ridge, ...	do.	Killed while attempting to mount a trip of wagons; squeezed between wagons and chute.
12,	Samuel Bender, ...	54	M.	..	do.	do.	Leg cut by bar slipping; died January 29.
20,	John Sangor, ...	42	M.	5	Logan, ...	Columbia,	Killed by explosion of blast.
25,	George Betz, ...	42	M.	5	Nelson, ...	Northumberland,	Killed by being struck with a piece of ice on shaft.
27,	William Rushon, ...	48	M.	2	Centralia, ...	Columbia,	Burned by powder; died January 27.
Feb. 3,	W. J. Glassmire, ...	48	M.	2	Pennsylvania,	Northumberland,	Killed by fall of top coal.
15,	James Troutman, ...	..	..	..	Big Mountain, ...	do.	Found dead on road; supposed to have been kicked by mule on head and shoulders.
28,	Jacob Smith, ...	45	M.	4	Locust Gap, ...	do.	Killed by fall of top coal.
Mar. 2,	John Rudolph, ...	45	M.	4	Enterprise, ...	do.	Fatally injured by premature explosion of shot.
3,	Cassir Barton, ...	28	M.	3	Nelson, ...	do.	Killed by fall of slate.
3,	William Temple, ...	25	M.	3	Williamstown, ...	Dauphin,	Squeezed between props and mine car.
16,	Daniel Deeter, ...	23	S.	..	Cameron, ...	Northumberland,	Killed by fall of coal.
18,	Peter Stasheski, ...	16	S.	2	Enterprise, ...	do.	Killed by fall of rock.
23,	Edward Mark, ...	16	S.	2	Short Mountain, ...	Dauphin,	Smothered by inhaling smoke from fire.
April 1,	John Robel, ...	..	..	..	Nelson, ...	do.	Smothered by inhaling smoke from fire.
1,	Michael Brennan, ...	..	..	..	do.	do.	Smothered by inhaling smoke from fire.
1,	John Brennan, ...	..	..	..	do.	do.	Smothered by inhaling smoke from fire.
1,	John Ryan, ...	..	..	..	do.	do.	Smothered by inhaling smoke from fire.
1,	Nick D'Ann, ...	..	..	..	do.	do.	Smothered by inhaling smoke from fire.
1,	Frank Smith, ...	..	..	..	do.	do.	Smothered by inhaling smoke from fire.
1,	Frederick Gliner, ...	..	..	..	do.	do.	Smothered by inhaling smoke from fire.
1,	John Bort, ...	..	..	..	do.	do.	Smothered by inhaling smoke from fire.
1,	John Gary, ...	..	..	..	do.	do.	Smothered by inhaling smoke from fire.
1,	Joe Bortax, ...	..	..	..	do.	do.	Smothered by inhaling smoke from fire.
4,	Bryan Durkin, ...	14	M.	..	Henry Clay, ...	Northumberland,	Smothered by inhaling smoke from fire.
4,	Thomas Jenkins, ...	..	..	..	Stirling, ...	do.	Fell into rollers and ground to pieces.
8,	Simon Boraskie, ...	..	..	..	Corbin, ...	do.	Burned by explosion of gas; died April 5.
11,	Thomas Miller, ...	..	..	..	Reliance, ...	do.	Killed by a fall of coal.
11,	William McGilwain, ...	..	..	..	Locust Spring, ...	do.	Fatally injured by fall of coal; died May 16.
27,	Martin Savel, ...	..	..	..	Lake Water, ...	do.	Fatally injured by fall of coal; died April 30.

27.	John Schwenker,	do.	Locust Spring,	do.	do.	Killed by fall of top coal.
28.	Frank Brickett,	do.	Short Mountain,	Dauphin,	do.	Killed by premature discharge of blast.
May	Julius Brainer,	28	do.	do.	do.	Killed by fall of top slate.
10.	Thomas Kenney,	46	Williamstown,	Northumberland,	do.	Killed by fall of coal.
13.	Anthony Yscavage,	13	Lake Eddier,	do.	do.	Injured by fall of top coal; died May 18.
13.	Michael Di-leoda,	13	Big Mountain,	do.	do.	Killed by fall of slate.
17.	John Wagner,	55	North Franklin,	do.	do.	Run over by loaded wagon and died May 21.
17.	Adam Sheese,	23	Corbin,	Dauphin,	do.	Killed by fall of top slate.
24.	Harry Weist,	23	Williamstown,	Northumberland,	do.	Killed by fall of top slate.
June 10,	Andrew Godoferski,	18	Stirling,	do.	do.	Face, neck, arms and hands burned by spark dropping in keg of powder; died June 17.
12,	Jesse Watkins,	19	Cameron,	do.	do.	Killed by gunnery going away and pushing him down chute.
14,	Clarence Henry,	46	do.	do.	do.	Killed by car uncoupling while being lowered and going down to bottom of slope.
24,	Thomas Williams,	16	Richards,	do.	do.	Instantly killed by wagon going down slope and striking wagon on which deceased was sitting.
24,	William Platt,	46	Pennsylvania,	do.	do.	Killed by wagons running over body.
July 6,	David Reed,	21	Burnside,	do.	do.	Mule ran away and pulled dumper over plane and dumper struck deceased.
21,	Charles McMullen,	51	Williamstown,	Dauphin,	do.	Killed by explosion of gas.
21,	George McMullen,	40	do.	do.	do.	Killed by fall of top slate.
25,	Mattis Monzel,	21	Patterson,	Northumberland,	do.	Killed by fall of top slate.
25,	Peter Stine,	17	do.	do.	do.	Killed by fall of top slate.
Aug. 11,	John H. Hess,	46	Williamstown,	Dauphin,	do.	Fell from a mule and caught in harness and was dragged to death.
11,	Thomas J. Acaley,	22	Short Mountain,	do.	do.	Body injured by fall of coal; died Aug. 14.
22,	Lewis Parick,	22	Reliance,	Northumberland,	do.	Fell under moving truck while attempting to mount same and was fatally injured.
31,	William Spiker,	37	Williamstown,	Dauphin,	do.	Killed by fall of slate.
Sept.	Thomas Nichols,	37	Logan,	Columbia,	do.	Killed by fall of coal.
8,	Thomas Walls,	37	Short Mountain,	Dauphin,	do.	Killed by fall of coal.
12,	Dennis Burns,	35	Cameron,	Northumberland,	do.	Killed by boulder falling on body.
13,	Mike Drumhauer,	35	Big Mountain,	do.	do.	Killed by being struck by moving wagons.
20,	Marlin McIntyre,	28	Logan,	Columbia,	do.	Body mangled by loaded wagons running over him.
28,	Thomas James,	27	Callert,	Northumberland,	do.	Fell under moving wagons and body mutilated.
28,	George McCoy,	27	Stirling,	do.	do.	Fatally injured by fall of top rock.
Oct.	Fred Weaver,	27	Locust Gap,	do.	do.	Killed by falling down counter chute.
6,	Paul Roma,	30	Excelsior,	do.	do.	Fatally burned by explosion of powder.
Nov.	John Ryan,	35	Burnside,	do.	do.	Killed by fall of coal.
13,	Charles Price,	35	Logan,	Columbia,	do.	Killed by fall of top coal.
20,	John Uhren,	35	Richards,	Northumberland,	do.	Killed by fall of top coal.
25,	Edward Miller,	35	North Ashland,	Columbia,	do.	Killed by fall of coal.
Dec. 20,	Charles Morroniesez,	35	Mertiam,	Northumberland,	do.	Killed by premature explosion of blast.
Apr. 23,	Peter Donbroski,	35	Lake Eddier,	do.	do.	Killed by fall of coal.
July 23,	Stany Waldron,	35	do.	do.	do.	Squeezed between wagon and platform.
June 23,	Dominick Anderly,	35	Pennsylvania,	do.	do.	Killed by explosion of gas.
28,	Chester Kearsar,	35	do.	do.	do.	Killed by explosion of gas.
May	Paul Koba,	40	Hickory Ridge,	do.	do.	Killed by fall of coal.
Sept. 14,	Joseph Dick,	27	Enterprise,	Dauphin,	do.	Killed by fall of coal.
Apr. 28,	Frank Brickett,	23	Williamstown,	do.	do.	Killed by fall of coal.
Aug. 16,	James Goodridge,	18	do.	do.	do.	Squeezed between car and timber; died Oct. 7, 1893.
	William Shuttlesworth,	18	do.	do.	do.	Struck on stomach by a load thrown at a mule by driver; died January 1, 1894.

TABLE No. 5—List of non-fatal accidents which occurred in the mines of the Seventh Anthracite District for the year ending December 31, 1893.

Date of accident.	Name of Person Injured.	Age.	Married or single.	No. of children.	Name of Colliery.	Location—County.	Nature and Cause of Accident in Brief.
Jan. 12,	John Howells, ...	30	M.	2	Hickory Ridge, ...	Northumberland,	Leg bruised while trying to hoist mule out of counter.
14,	Joel Gottshall, ...	17	..	..	Neelson, ...	do.	Leg broken by fall of coal.
17,	Edward Barrett, ...	17	..	..	North Ashland, ...	Columbia,	Leg broken by fall of slate.
25,	Joshua Caml, ...	25	..	..	Logan, ...	do.	Injured by falling from joist in carpenter shop.
25,	Anthony Beneze, ...	25	..	..	Monitor, ...	Northumberland,	Leg and back bruised by fall of coal.
26,	Thomas Carroll, ...	24	S.	..	Mount Carmel, ...	do.	Leg broken by fall of coal.
28,	Casper Ziegler, ...	28	..	..	North Ashland, ...	Columbia,	Ribs broken by fall of coal.
30,	Michael Katchmore, ...	19	S.	..	Hickory Swamp, ...	Northumberland,	Leg injured by fall of slate.
Feb. 8,	Joseph Barreuts, ...	26	S.	..	Luke Fidler, ...	do.	Leg broken by fall of rock.
15,	Michael Tirook, ...	26	S.	..	Hickory Ridge, ...	do.	Leg hurt by falling under wagons.
13,	Albert Brown, ...	13	..	..	Merriam, ...	do.	Internally injured while using sledge.
14,	Michael Conery, ...	14	..	..	Logan, ...	Columbia,	Hand crushed in cog-wheels.
14,	Edward Toucy, ...	14	..	..	Cameron, ...	Northumberland,	Leg broken by fall of coal.
15,	Stany Bobluskie, ...	24	S.	..	do.	do.	Leg broken by fall of coal.
21,	William Jacovick, ...	20	S.	..	Pennsylvania, ...	do.	Burned by explosion of gas.
21,	Michael Barock, ...	40	S.	..	Hickory Ridge, ...	do.	Leg fractured by rock falling from wagon.
24,	Wm. Penamonte, ...	24	..	..	Neelson, ...	do.	Arm blown off and otherwise injured by premature explosion of shot.
28,	Glen Tarsaw, ...	34	M.	5	Hickory Ridge, ...	do.	Arm dislocated whilst throwing chain.
Apr. 12,	W. J. Snyder, ...	12	..	..	Cameron, ...	do.	Leg and body injured by explosion of shot.
12,	Michael Brien, ...	12	..	..	Centralla, ...	Columbia,	Squeezed between rock dumpers.
15,	Charles Delugh, ...	15	..	..	Burnside, ...	Northumberland,	Leg hurt by being caught in hook on wagon.
17,	Robert Wyorin, ...	17	..	..	Merriam, ...	do.	Body bruised between door frame and ears.
27,	Martin Snel, ...	27	..	..	do.	do.	Back hurt by fall of top coal.
28,	Michael Keans, ...	28	..	..	Monitor, ...	do.	Hand mashed between dumpers.
28,	Fred Riekerd, ...	28	..	..	Williamstown, ...	Dauphin,	Slightly burned and bruised by gas.
28,	Timothy McCarthy, ...	28	..	..	do.	do.	Slightly burned and bruised by gas.
28,	Charles Carl, ...	28	..	..	do.	do.	Ribs broken and internally injured.
May 1,	Samuel Inval, ...	1	..	..	Merriam, ...	Northumberland,	Leg broken by fall of coal.
3,	William Neidiz, ...	3	..	..	Cameron, ...	do.	Squeezed between wagon and brattice.
3,	Frank Alshefski, ...	3	..	..	do.	do.	Hand and hip injured by fall of top coal.
4,	Michael Kovalick, ...	24	S.	..	Pennsylvania, ...	do.	Slightly burned by ignited gas.
4,	Bernard Angelo, ...	25	S.	..	do.	do.	Leg broken by fall of coal.
8,	John Cullacufski, ...	8	..	..	Burnside, ...	do.	Leg broken by fall of coal.

16,	Stacy Kinsel	Patterson	do.	Leg broken by fall of coal.
20,	William Fowell	Bear Valley	do.	Ribs broken by fall of coal.
22,	William Hickey	Luke Fidler	do.	Arm and leg torn off by being caught in shaft.
24,	Thomas Eiko	Richards	do.	Leg broken by falling from chute.
25,	Peter Wolf	Burnside	do.	Burned by ignited gas.
25,	Thomas Anderson	Williamstown	Dauphin	Back hurt by fall of top coal.
27,	Wm. McKenral	Locust Spring	Northumberland	Injured by fall of top coal.
June 1,	Andrew Drobnock	Hickory Ridge	do.	Leg broken by being struck by wagons.
1,	William Foulds	Bear Valley	do.	Arm broken by being caught between wagon and door.
5,	Peter Wolf	Burnside	do.	Burned by explosion of gas.
5,	Geo. Freibelpiece	do.	do.	Bruised by being squeezed between wagons.
6,	Amyl Kobelitch	Hickory Swamp	do.	Arm broken by wagon running over it.
6,	Harry Lincoln	Burnside	do.	Collar bone broken by being squeezed between wagons.
8,	John O'Brien	Cameron	do.	Ribs broken by falling from ladder.
10,	Daniel Wooley	Luke Fidler	do.	Leg broken by falling from ladder.
23,	John Tarkoka	Big Mountain	do.	Leg broken by falling slate.
27,	Ignatius Grocoksky	Pennsylvania	do.	Burned by explosion of gas.
30,	Stephen Sabo	do.	do.	Squeezed by wagons on top of plane.
28,	John Callery	Centralia	Columbia	Wrist broken and body bruised while playing.
July 1,	Thomas Danbert	Hickory Ridge	Northumberland	Leg bruised by moving wagons.
1,	Thomas Danbert	Mount Carmel	do.	Bruised by fall of coal.
3,	Joseph Brown	Logan	Columbia	Back injured by being struck by wagons.
5,	John W. Welsh	Williamstown	Dauphin	Foot hurt by jumping off moving wagon.
8,	August Fisher	Big Mountain	Northumberland	Face and hands cut by pieces of flying coal.
8,	Patriek Martin	Williamstown	Dauphin	Foot crushed by wagon running over it.
July 11,	Joseph Payek	Short Mountain	do.	Two fingers cut off and body bruised by falling in front of moving mine wagons.
12,	George W. Row	do.	do.	Burned by explosion of gas.
12,	Thomas Elm	do.	do.	Burned by explosion of gas. All of coal.
13,	Thomas Roberts	Burnside	Northumberland	Body and head bruised by falling coal.
13,	Silas Allen	Williamstown	Dauphin	Falling off moving wagon and breaking arm.
13,	Flurry Sullivan	do.	do.	Falling off moving wagon and hurting hips and finger.
14,	John Hand	Short Mountain	do.	Fell from trestle while playing, bruising body.
27,	William Stevenson	Burnside	Northumberland	Squeezed across hips between wagons.
29,	Stacy Latowich	Short Mountain	Dauphin	Back and arm injured while riding on wagons up slope.
Aug. 12,	Frank York	Cameron	do.	Leg broken by flying piece of coal from shot.
14,	Thomas Wooley	Alaska	Northumberland	Leg cut by being caught between wagons.
16,	William Hill	Williamstown	do.	Head injured by coal striking it.
16,	John Goodrich	do.	Dauphin	Leg cut by being caught between wagons.
17,	Anthony Vesler ski	Big Mountain	do.	Face and hands burned by ignited gas.
17,	Frank Moletski	do.	Northumberland	Face and hands hurt by premature discharge of shot.
25,	Peter Melz	Enterprise	do.	Head and eye hurt by falling from chute.
31,	N. Houseman	Potts	do.	Head hurt by being squeezed between car and rib.
Sept. 5,	Charles Haines	North Franklin	Columbia	Leg broken by being squeezed between car and rib.
7,	Ignatius Deftman	Hickory Ridge	Northumberland	Head cut and ear cut off by fall of top coal.
8,	George Getz	do.	do.	Too mashed by piece of coal falling on it.
12,	Charles Rung	Merriam	do.	Hand bruised; squeezed between mine wagons.
15,	John Shebaski	Pennsylvania	do.	Body bruised; squeezed between mine wagons.
15,	John Novoselko	do.	do.	Body bruised; squeezed between mine wagons.
15,	John Wagner	do.	do.	Body bruised; squeezed between mine wagons.
16,	Joseph Deck	Enterprise	do.	Injured by fall of top coal.
16,	John Mattis	do.	do.	Injured by fall of top coal.

TABLE NO. 5—Continued.

Date of accident.	Name of Person Injured.	Age.	Married or single.	Number of children.	Name of Colliery.	Location—County.	Nature and Cause of Accident in Brief.
Sept. 18,	Robert Boyd.	23	M.	..	Hickory Swamp,	Northumberland,	Leg and foot hurt by fall of clod.
16,	John Campbell.	..	..	..	Alaska,	do.	Arm broken and head cut by being caught between mine wagons.
Oct.	John Kootash.	35	M.	..	Pennsylvania,	do.	Burned by ignited gas.
2,	Michael Kippage,	29	M.	..	do.	do.	Burned by ignited gas.
2,	Joseph Gathage,	24	S.	..	do.	do.	Injured by explosion of blast.
5,	Geo. Rosemerski,	..	..	..	Luke Fidler,	do.	Leg fractured by fall of coal.
5,	Charles Moyer,	..	..	..	Merriam,	do.	Foot cut by being struck by coal.
6,	Charles Cump,	17	..	..	Williamstown,	Dauphin,	Leg broken by being caught between wagon and door.
7,	Ludwig Molefski,	..	..	..	Burnside,	Northumberland,	Back hurt by fall of coal.
9,	Frank Manesteln,	..	..	..	Locust Spring,	do.	Head and body burned by explosion of powder.
9,	Dominick Mauresteln,	3,	..	..	do.	do.	Head and body burned by explosion of powder.
9,	James Sullivan,	..	S.	..	Burnside,	do.	Head and body burned by fall of coal.
10,	Patrick B. Brennan,	43	M.	..	Williamstown,	Dauphin,	Back injured by fall of slate.
12,	Dominick Hart,	50	M.	..	Logan,	Columbia,	Leg and back injured by fall of slate.
12,	Harry Miller,	..	..	..	Alaska,	Northumberland,	Thigh broken by wagon jumping from the track.
26,	Arthur Kautzer,	17	..	..	Williamstown,	Dauphin,	Leg broken by being caught between bumpers of wagons.
26,	Frank Jinitko,	26	S.	..	Pennsylvania,	Northumberland,	Slightly burned by explosion of gas.
26,	Marion Gachefski,	25	S.	..	do.	do.	Slightly burned by explosion of gas.
Nov.	John Latz,	32	..	..	Short Mountain,	Dauphin,	Seriously injured by explosion of dynamite.
2,	John Spomick,	34	..	..	do.	do.	Seriously injured by explosion of dynamite.
8,	Charles Wils n.	17	S.	..	Hickory Ridge,	Northumberland,	Arm broken by being caught between wagon and shuttle.
23,	George Willis,	49	M.	..	Centralia,	Columbia,	Leg broken by fall of coal.
23,	John Waters, Jr.,	16	S.	..	Mount Carmel,	Northumberland,	Arm crushed by wagons running over it, necessitating amputation.
24,	Stany Morris,	35	M.	..	Richards,	do.	Thumb blown off and otherwise injured by explosion of powder.
24,	Albert Winkstein,	..	..	..	Burnside,	do.	Back injured by fall of coal.
24,	Frank Clesco,	24	..	..	do.	do.	Body bruised by fall of slate.
Dec.	James Hunter,	..	..	..	Short Mountain,	Dauphin,	Leg broken by fall of slate.
4,	John Doyle,	58	M.	2	Hickory Swamp,	Northumberland,	Knocked down by mine cars and arm broken.
5,	Henry Lebo,	27	..	..	Williamstown,	Dauphin,	Leg broken by fall of coal.
7,	James Newton,	27	..	..	do.	do.	Leg broken by stepping into partly hole.

11,	Rudolph Lexo, ...	Merriam, ...	Northumberland, ...	Kicked by mule, knocked under wagon and head bruised.
13	William Engle, ...	Burnside, ...	do.	Back and leg bruised by fall of top coal.
20,	Frank Olinsky, ...	Morris Ridge, ...	Columbia, ...	Leg broken by fall of rock.
20,	Elmer Fister, ...	Short Mountain, ...	Dauphin, ...	Foot crushed by fall of slate.
July 25,	John Harris, ...	Patterson, ...	Northumberland, ...	Injured by fall of top slate.



EIGHTH ANTHRACITE DISTRICT.

(SCHUYLKILL COUNTY.)

Hon. Thomas J. Stewart, Secretary of Internal Affairs:

Sir: I have the honor of presenting herewith the annual report of the Inspector of Mines of the Eighth Anthracite district for the year 1893.

My predecessor, Mr. Samuel Gay, died on the 30th of November, 1893, after a period of severe suffering. Mr. Gay had filled the responsible position of a mine Inspector since 1875 with credit to himself and to the satisfaction of miners, colliery officials and owners as well as all others with whom he came in contact in his official capacity. His death was universally regretted, not only in his own district, but throughout the whole Anthracite region. He was well known as a gentleman of sterling qualities and of sound judgment in everything pertaining to the mining of coal, and without question, was one of the most competent mine Inspectors this region has known.

The quantity of coal mined in the Eighth Anthracite district during 1893 was 3,142,504.63 tons, against 3,066,092 tons for 1892.

Having but recently been appointed as Inspector of this district, and this report having been delayed on account of the vacancy in the office, it will of necessity be brief and consist only of tabulated statements showing the number of fatal and non-fatal accidents, the production of coal from the several collieries, the number of employes, etc.

Yours very respectfully,

JOHN MAGUIRE,
Inspector of Mines.

Comparative statement of fatal accidents for the years 1892 and 1893.

Cause of Accidents.	1892.	1893.
Explosion of fire-damp, ...	16	4
Falls of coal and roof, ...	9	7
Crushed by mine cars, ...	6	4
By machinery on surface, ...	2	2
By machinery under ground, ...	None.	1
Falling down shafts, ...	None.	1
Falling down slopes, ...	1	1
Blasting material, ...	3	None.
By drowning, ...	10	4
Miscellaneous, ...	3	3
Total, ...	50	27

Table showing number of fatal accidents and quantity of coal produced per life lost by the different companies and individual firms during the year 1893.

	Number of fatal accidents.	Quantity of coal produced per life lost.
Philadelphia and Reading Coal and Iron Company, ...	12	138,982
Lehigh Coal and Navigation Company, ...	3	223,437
Lehigh Valley Coal Company, ...	1	169,224
Individual firms, ...	11	60,971
Total, ...	27	

Comparative statement of non-fatal accidents during years 1892 and 1893.

Cause of Accidents.	1892.	1893.
Explosions of fire-damp, ...	7	15
Falls of roof and coal, ...	15	9
Crushed by mine cars, ...	9	9
By machinery on the surface, ...	1	1
Explosions of blasting materials, ...	7	6
Miscellaneous, ...	13	4
Total, ...	52	44

Table showing the quantity of coal shipped by rail and estimated quantity used and sold at the mines.

	1892.	1893.
Quantity of coal shipped by railroads, ...	2,892,540	2,983,019
Estimated quantity used about the mines, ...	173,552	194,990
Total production, ...	3,066,092	3,178,009

Table showing comparisons between the years 1892 and 1893.

	1892.	1893.
Number of persons employed, ...	10,416	10,677
Quantity of coal mined per life lost, ...	61,321	117,704
Ratio of employes per life lost, ...	212	395
Number of tons produced per each person injured, ...	57,840	72,227
Tons of coal per each employe, ...	294.30	297.60

SUMMARY.

Number of fatal accidents, ...	27
Number of non-fatal accidents, ...	44
Number of kegs of powder used, ...	50,455
Pounds of high explosives used, ...	213,176
Tons of coal produced, ...	3,178,009
Tons of coal shipped, ...	2,983,019
Tons of coal produced per each employee, ...	297 6-10
Tons of coal produced per each fatal accident, ...	117,704
Tons produced per each non-fatal accident, ...	72,227
Number of mines in operation, ...	42
The largest output from a single colliery, ...	359,114
Number of persons employed, ...	10,677
Number of steam boilers, ...	727
Average number of days worked, ...	208

TABLE NO. 1. — *Showing location &c., of Collieries in the Eighth Anthracite District for the year ending December 31, 1893.*

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Postoffice Address.
Middle Creek, ...	Philadelphia and Reading Coal and Iron Co., ...	Schuylkill, ...	R. C. Luther, ...	Pottsville, Schuylkill county.
Phoenix Park, ...	do, ...	do, ...	do, ...	do, ...
Thompsonston, ...	do, ...	do, ...	do, ...	do, ...
Otto, ...	do, ...	do, ...	do, ...	do, ...
Glendower, ...	do, ...	do, ...	do, ...	do, ...
Beachwood, ...	do, ...	do, ...	do, ...	do, ...
Richardson, ...	do, ...	do, ...	do, ...	do, ...
Brookside, ...	do, ...	do, ...	do, ...	do, ...
East Franklin, ...	do, ...	do, ...	do, ...	do, ...
Pine Forrest, ...	do, ...	do, ...	do, ...	do, ...
Good Spring, ...	do, ...	do, ...	do, ...	do, ...
Old Lincoln, ...	do, ...	do, ...	do, ...	do, ...
Eagle Hill, ...	do, ...	do, ...	do, ...	do, ...
Silver Creek shaft, ...	do, ...	do, ...	do, ...	do, ...
North Brookside, ...	do, ...	do, ...	do, ...	do, ...
No. 8, ...	Lehigh Coal and Navigation Company, ...	do, ...	W. D. Zehner, ...	Lausford, Carbon county.
No. 9, ...	do, ...	do, ...	do, ...	do, ...
No. 11, ...	do, ...	do, ...	do, ...	do, ...
No. 12, ...	do, ...	do, ...	do, ...	do, ...
Kask, William, ...	do, ...	do, ...	do, ...	do, ...
Yack Farm, ...	do, ...	do, ...	do, ...	do, ...
Blackwax, ...	Lehigh Valley Coal Company, ...	do, ...	Wm. A. Lathrop, ...	Wilkes-Barre, Luzerne county.
New Boston, ...	do, ...	do, ...	do, ...	do, ...
Morea, ...	New Boston Coal Company, ...	do, ...	T. D. Jones, ...	Hazleton, Luzerne county.
Oak Hill, ...	Dodds Coal Company, ...	do, ...	Samuel J. Thomas, ...	Morea.
Greenwood No. 13, ...	Syken & Co., ...	do, ...	William Gregory, ...	Minersville.
Flowers Field, ...	Beddalls Bros. & Co., ...	do, ...	Joseph Beddall, ...	Tamaqua.
West Lehigh, ...	Sturdivent & Co., ...	do, ...	do, ...	do, ...
Ellsworth, ...	John Young, ...	do, ...	John Young, ...	New Castle, St. Clair.
Schuylkill Valley, ...	John H. Davis, ...	do, ...	John H. Davis, ...	St. Clair.
Reserve, ...	R. White & Co., ...	do, ...	Richard White, ...	do, ...
Peach Orchard, ...	do, ...	do, ...	do, ...	do, ...
Albright, ...	do, ...	do, ...	James Archibald, ...	Pottsville, Pa.
East Lehigh, ...	Albright Coal Company, ...	do, ...	Joseph Mitchell, ...	Tamaqua.
Hoeker, ...	Linderman & Co., ...	do, ...	Samuel Yuner, ...	Pottsville.
Keckline, ...	Keckline Coal Company, ...	do, ...	B. Sullivan, ...	Minersville.
Eagle, ...	Thomas Crockson, ...	do, ...	Thomas Crockson, ...	St. Clair.
Red Ash, ...	William Walters & Co., ...	do, ...	William Walters, ...	do, ...
Wadesville, ...	Philadelphia and Reading Coal and Iron Co., ...	do, ...	John Velth, ...	Pottsville.
Oakdale Jigs, ...	do, ...	do, ...	do, ...	do, ...

TABLE No. 2.—Gives the total number of tons of coal mined in each colliery, number of days worked, number of employees, number of persons killed and injured, number of kegs of powder used, etc., in the Eighth Anthracite District for the year ending December 31, 1893.

Names of Collieries.	Location.	Total production in tons of coal.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs of powder used.	Number steam boilers.	Number horses and mules.	Number mine locomotives.	Pounds of dynamite.
York Farm.	Pottsville.	88,242.08	86,412.18	204.8	595	1	9	1,255	27	25	..	19,400
Littlewood.	Blackwood.	80,931.19	78,803.09	222.7	419	..	3	2,600	15	31	..	8,650
Littlewood.	Minersville.	..	..	..	202	..	..	..	..	..	..	..
New Boston.	New Boston.	94,958.01	75,008.01	146.25	251	2	..	2,600	56	43	..	1,200
Morea.	Morea.	241.00	221.90	248.7	422	..	3	1,820	36	55	..	26,750
Oak Hill.	Minersville.	109,899.18	109,899.18	190	229	7	3	1,820	20	17	..	5,900
Greenwood No. 13.	Tamaqua.	35,986	33,100	213	101	..	..	367	4	17	1	1,365
Flowers Field.	Tamaqua.	8,591	8,517	60	64	1	..	450	6	6	..	1,000
West Lehigh.	Tamaqua.	20,410	15,871	259	51	..	..	360	3	7	..	1,200
Ellsworth.	New Castle.	14,680.03	14,180.03	250	66	..	..	350	3	5	..	2,000
Albright Washery.	Branch township.	13,774.17	10,561.02	135.4	71	1	..	8	10	7	..	1,600
Reserve.	Wadesville.	7,074.03	6,650	141	54	..	..	295	4	4	..	150
East Lehigh.	Tamaqua.	4,049.15	3,871.15	200	22	..	..	150	1	3	..	..
Chamberlin.	St. Clair.	..	..	..	..	..	..	..	..	..	..	..
Hoocher, Mt. Hope.	do.	60,875.17	55,475.19	241	138	1	1	951	11	10	..	2,425
Schmalkill Valley.	New Castle.	7,382.17	6,940	165	65	..	..	130	3	4	..	500
Eagle.	St. Clair.	2,953	2,953	245	16	..	..	120	2	3	..	200
Peach Orchard.	Wadesville.	5,887.08	5,487	154	59	..	..	350	2	4	..	..
Red Ash.	do.	5,000	3,000	218	23	..	..	325	1	4	..	..
Oakdale Jigs.	do.	34,510	34,510	189.40	37	..	..	..	..	..	..	..
Mine Hill.	Heckscherville.	3,690.14	3,690.14	264	18	..	..	120	2	3	..	..
Middle Creek shaft.	Middle Creek.	48.17	48.17	184.5	247	..	..	993	..	..	..	1,035
Phoenix Park.	Phoenix Park.	52,706	52,706	186.90	18	5	..	1,198	18	34	..	3,210
Thomaston.	Thomaston.	93,801	90,801	175.25	541	2	..	2,828	46	59	..	6,115
Otto.	Branchville.	115,248	109,248	183.80	541	..	..	1,578	38	68	..	14,292
Glendower.	Taylorsville.	110,732	105,732	195.35	503	1	4	2,705	39	69	..	7,346
Beachwood.	Mount Dauffe.	80,791	77,691	210.65	388	3	2	1,495	20	40	..	1,2204

TABLE NO. 2. — Continued.

Names of Collieries.	Location.	Total production in tons of coal.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.	Number mine locomotives.	Pounds of dynamite.
Richardson, ...	Heckscherville, ...	103,715	98,015	190.95	348	1	2	722	35	30	..	15,719
Brookside, ...	Tower City, ...	301,230	286,833	283.50	888	1	..	4,165	73	39	1	7,324
East Franklin, ...	Tremont, ...	127,406	127,406	267.30	493	..	..	..	19	..	..	6,437
Eme Forest, ...	St. Clair, ...	190,400	190,400	238.30	313	1	..	4,708	24	55	..	6,437
Good Spring, ...	Good Spring, ...	101,400	98,108	258.15	313	..	1	3,583	24	26	..	6,424
Old Lincoln, ...	Lorberry, ...	359,114	342,111	274.65	812	2	1	7,446	36	40	..	6,450
Baggie Hill, ...	Lorberry, ...	150,469	143,469	213.60	545	1	2	2,031	32	56	..	9,943
North Creek shaft, ...	North Creek, ...	12,188	11,688	32.50	248	..	..	590	13	14	..	8,275
North Brookside, ...	Tower City, ...	240,843.09	228,523.09	246	431	..	..	780	21	75	..	23,530
Lehigh Coal & Nav' tion Co., No. 8, ...	Coaldale, ...	221,400.12	206,470.17	249.15	510	3	2	1,020	56	72	..	7,535
Lehigh Coal & Nav' tion Co., No. 10, ...	do, ...	176,835.02	168,721.01	224.05	381	..	..	1,800	20	50	..	12,000
Lehigh Coal & Nav' tion Co., No. 11, ...	do, ...	41,341.05	39,020.11	106.05	225	..	..	680	18	18	..	3,100
Kaska William shaft, ...	Middleport, ...	..	..	..	..	1	..	..	..	..	..	..
Wadesville shaft, ...	..	..	..	..	11	..	..	..	..	..	..	..
Total, ...	..	3,142,504.63	3,069,013.37	7,187.7	10,777	27	44	50,355	724	1,125	2	203,376

TABLE NO. 3.—Showing the number of each class of employes at each colliery in the Eighth Anthracite District during the year 1893.

Names of Collieries.	Number of Persons Employed Inside.						Number of Persons Employed Outside.						Grand total inside and outside.		
	Inside foremen.	Miners.	Miners' laborers.	All company men.	Drivers and runners.	Door-boys and helpers.	Total inside.	Outside foremen.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	All other company men.		Superintendents, bookkeepers and clerks.	Total outside.
Middle Creek shaft.	3	64	20	39	5	8	134	1	4	11	41	35	1	93	227
Phoenix Park.	3	160	12	51	22	7	292	1	4	6	49	49	1	86	311
Thomaston.	6	172	35	102	19	12	346	2	7	19	100	65	2	195	541
Otto.	8	142	59	136	22	18	385	2	9	18	83	105	2	219	604
Glendower.	6	136	44	114	20	8	328	1	6	17	68	80	2	175	503
Beachwood.	4	101	32	89	18	12	256	1	3	7	33	37	1	82	338
Richardson.	4	97	10	84	8	10	213	1	7	16	30	53	2	135	318
Brookside.	5	213	78	225	43	14	578	1	13	31	132	130	2	310	858
East Franklin.	1	163	42	83	19	..	314	1	..	8	90	71	1	2	408
Pine Forest.	7	165	35	135	41	5	394	2	11	..	53	43	2	184	608
Good Spring.	3	105	100	155	39	2	581	2	17	15	89	106	2	231	611
Old Lincoln.	5	280	14	43	13	14	347	2	17	13	80	92	2	198	544
Eagle Hill.	3	144	49	114	19	4	317	1	82	11	10	80	..	184	298
Silver Creek shaft.	..	2	44	58	..	..	..	..	..	..	..	..	..	..	..
North Brookside.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kaska William.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lehigh No. 8.	5	57	21	165	18	10	276	1	8	13	68	65	..	155	431
Lehigh No. 1.	7	68	16	155	23	14	283	1	6	19	121	80	..	227	510
Lehigh No. 11.	4	68	12	103	13	8	210	1	5	15	93	57	..	171	380
Lehigh No. 12.	4	50	18	63	13	5	133	1	1	11	39	19	..	72	225
York Farm.	2	202	107	52	12	5	380	1	15	15	61	52	2	146	526
Blackwood.	4	135	2	8	17	2	168	1	12	22	149	97	2	281	449
New Boston.	1	51	35	12	20	3	122	1	7	20	64	29	6	129	251
Morea.	2	74	53	20	19	6	174	2	10	16	90	137	3	248	422
Oak Hill.	2	60	54	47	10	3	176	1	7	14	37	31	3	93	269
Lytle.	3	16	40	26	..	..	85	1	11	18	..	86	..	117	202
Greenwood No. 13.	1	24	22	..	6	..	53	2	4	1	..	20	1	48	101
Hooker.	1	46	24	6	2	..	84	1	2	9	19	11	2	44	128
Schuylkill Valley.	1	12	4	5	2	..	24	1	1	2	21	16	..	41	65
Peach Orchard.	1	26	6	..	..	..	33	1	1	3	16	7	..	22	55
Reserve.	1	24	5	..	..	..	30	1	1	3	16	5	..	26	56
Ellsworth.	..	26	12	..	3	..	42	1	2	2	10	8	1	24	66
East Lehigh.	1	8	..	..	2	..	11	1	1	1	4	..	..	11	22

TABLE No. 3—Continued.

Names of Collieries.	Number of Persons Employed Inside.						Number of Persons Employed Outside.								
	Inside foremen.	Miners.	Miners' laborers.	All company men.	Drivers and runners.	Door-boys and helpers.	Total inside.	Outside foremen.	Blacksmiths and carpenters.	Engineers and firemen.	Slate pickers.	All other company men.	Superintendents, bookkeepers and clerks.	Total outside.	Grand total inside and outside.
Chamberlin.*	112	2,773	1,011	1,905	422	166	6,449	47	285	390	1,751	1,709	48	4,230	10,679
Keckline.							10	1							16
Eagle.	1	4	4		1		19	1	1	1	3	1		6	25
Red Ash.	1	11	3	2	2	1	26	1	1	1	3	1		25	51
West Lehigh.	1	15	3	3	3										11
Wadesville.									2	6		28		37	37
Oakdale Jigs.				3			48	1	2	3				21	64
Flowers Field.	1	33	3		6				2		14		1	7	18
Mine Hill.	1	6	3		1		11	1			4	1		11	18
Albright.	1	8	4	4			20	1	8	8	6	25	3	51	71
Totals.															

* Not in operation.

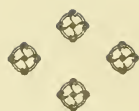
TABLE NO. 4.—List of fatal accidents which occurred in the mines of the Eighth Anthracite District for the year ending December 31, 1893.

Date of accident.	Name of Person Injured.			No. of orphans.	Married or single.	Age.	Name of Colliery.	Location—County.	Nature and Cause of Accident in Brief.
Jan. 19,	William Stevens,	18	..	..	..	..	Thomaston, ..	Schuylkill county, ..	Fatally injured by being caught between car and timber. Died January 25th.
21,	James Devlin,	18	..	..	..	..	Eagle Hill,	do.	Slipped on ice and fell into scraper line.
21,	Samuel Cresswell,	21	..	..	..	..	Hooker, ..	do.	Died from injuries received by being caught in screen wheel.
Feb. 20,	Christ Shire,	38	..	6	..	..	Oak Hill,	do.	Struck on head by handle of windlass and knocked down sinking shaft.
21,	James Lawler,	38	..	3	..	..	New Boston.	do.	Fatally injured by a piece of coal falling off rib and knocking him against side of car.
Mar. 4,	John Morgan,	..	..	..	..	..	Oak Hill,	do.	Killed by explosion of gas.
4,	Will Farrell,	..	..	..	..	..	do.	do.	..
13,	Adam Krous,	..	..	..	..	..	Richardson.	do.	Killed by timber falling on him from railroad car.
28,	John W. Smith,	..	..	..	..	..	New Boston.	do.	Fatally injured by fall of coal March 25th.
20,	Leon Gollinskie,	50 M.	..	3	..	..	Oak Hill,	do.	Killed by a fall of coal in breast.
Apr. 29,	George Goodman,	..	..	..	..	..	Pine Forest,	do.	Injured by fall of coal February 3d, and died from injuries.
June 17,	George Kertzo,	..	..	..	..	..	No. 10, L. C. & N. Co.,	do.	Caught between cage and timber in attempting to get on cage after it had started.
21,	Griffith Griffiths,	38	..	..	..	..	Beechwood,	do.	Killed by a fall of coal.
28,	Mich. O' Neal,	17	..	..	..	..	Lincoln,	do.	Skull fractured, caught between car and face of tunnel.
July 11,	Al. Linwood,	..	..	..	..	..	Beechwood,	do.	Burned by an explosion of gas, and died on 18th.
13,	George Beauhler,	..	..	..	..	..	York Farm,	do.	Killed by a fall of stones and clay while timbering top of air shaft.
Aug. 1,	Jacob Geiger,	41 W.	..	..	..	..	Lincoln,	do.	Killed by a fall of slate in breast.
4,	John Shader,	31 M.	..	..	..	..	Brookside,	do.	Killed by falling down the manway of his breast.
Sept. 20,	Harry Hughes,	..	..	..	..	..	Beechwood,	do.	Fatally injured by being caught between car and post of car hoist. Died at miner's hospital October 2nd, 1893.
Oct. 27,	Ernest Batton,	..	..	..	..	..	Thomaston,	do.	Fatally burned by gas and died November 10th.
30,	William Miller,	21 S.	..	..	..	..	No. 10, L. C. & N. Co.,	do.	Killed; squeezed between cars.
Nov. 6,	John Pace,	..	..	..	..	..	Windower,	do.	Fell out of wagon while riding up slope.
23,	John Weigoshia,	..	..	..	..	..	No. 10, L. C. & N. Co.,	do.	Killed by a collar falling on him that he was taking out.
Dec. 20,	Giles Blount,	..	..	..	..	..	Oak Hill,	do.	Drowned by a rush of water from Old Harper
20,	Joe Stanlek,	..	..	..	..	..	do.	do.	These were striking West Phinrose
20,	Paul Alex,	..	..	..	..	..	do.	do.	vein gangway and holed into old workings.
23,	Edward Corbett,	..	..	..	..	..	Kaska William,	do.	Drowned; walked into cage pit while cage was up.

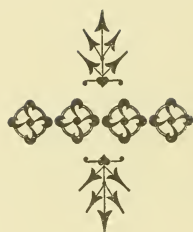
TABLE NO. 5.—List of non-fatal accidents which occurred in the mines of the Eighth Anthracite District for the year ending December 31, 1893.

Date of accident.	Name of Person Injured.	Age.	Married.	Number of children.	Name of Colliery.	Location—County.	Nature and Cause of Accident in Brief.
Jan. 9,	Pat. Purcell.	...	...	...	Richardson,	do.	Leg broken by fall of coal.
12,	Jacob Burke,	...	...	...	do.	do.	Hand blown off by premature discharge of dynamite.
16,	Noah Hower,	...	...	...	Good Spring,	do.	Rib fractured, caught by fall of frozen crust (outside).
26,	George Rubinsky,	...	...	...	Oak Hill,	do.	Injured by a fall of coal.
31,	Chas. Lewis,	...	...	...	Flowery Field,	do.	Hip dislocated by fall of rock.
Feb. 4,	Wm. Smedley,	...	...	...	York Farm,	do.	Arm broken, caught in shaft.
8,	Joseph Kastard,	...	...	...	do.	do.	Collar bone broken by a fall of rock.
Mar. 4,	Pat. Mailey,	...	...	...	Oak Hill,	do.	Burned by an explosion of gas.
14,	George Schoffstall,	...	...	...	Blackwood,	do.	Head injured; fell down it breast manway.
15,	Bernard Gantley,	...	...	...	do.	do.	Slightly injured by a small piece of slate falling on arm.
22,	Mich. Balanski,	...	...	...	Oak Hill,	do.	Arm broken; unloading a car of timber and piece fell on him.
28,	Wilhelm Schultz,	...	...	...	Lincoln,	do.	Leg broken; piece of slate fell on him.
April 11,	Joseph Sternko,	...	...	...	Blackwood,	do.	Squeezed between cars.
19,	John Jones,	...	...	...	Schuylkill Valley,	do.	Arm blown off by a premature blast.
23,	Stiney Gonsler,	...	...	...	Glendower,	do.	Injured about body by a fall of coal.
28,	John L. Brennan,	...	...	...	do.	do.	Arm taken off by a premature blast.
May 6,	James James,	...	...	...	No. 10 Colliery,	do.	Lost an arm by falling off a car and wheels passing over it.
9,	Robt. Nueter,	...	...	...	York Farm,	do.	Leg injured by a fall of roof.
15,	Yank Mars,	...	...	...	do.	do.	Collar bone fractured, caught between door and cars.
15,	Martin Ruminsky,	...	...	...	Beechwood,	do.	Face and hands burned by gas, fired gas after shot.
19,	Joseph Greyouts,	...	...	...	do.	do.	Face and hands burned by gas, fired gas after shot.
23,	Ed. Jones,	...	...	...	Glendower,	do.	Face and hands burned by explosion of gas.
23,	John Jenkins,	...	...	...	do.	do.	Face and hands burned by explosion of gas.
May 28,	Charles Maurer,	...	...	...	Middle Creek shaft,	Schuylkill county.	
29,	William Erdman,	...	...	...	do.	do.	
30,	John Sager,	...	...	...	do.	do.	
30,	Frank Huth,	...	...	...	do.	do.	
30,	William Rohlf,	...	...	...	do.	do.	
July 25,	James O. Connor,	...	...	...	Otto,	do.	Burned by an explosion of gas.
25,	James Brennan,	...	...	...	Otto,	do.	Head and body bruised by premature explosion of blast.
6,	James Brennan,	...	...	...	Otto,	do.	Jaw broken; struck by bar while starting battery.

7,	William Lewis,	.	.	.	.	.	No. 10 L. C. & N. Co.,	do.	Door boy; leg broken by a mine car jumping the track.
14,	Mich. Swadock,	.	.	.	.	.	Morea,	do.	Squeezed between cars.
Aug. 7,	Thomas J. Davls,	.	.	.	.	.	do.	do.	Foot injured by a fall of coal.
Sept. 6,	James Shadle,	.	.	.	.	.	Blackwood,	do.	Hand badly bruised; caught under wheel of car.
Oct. 16,	William Burke,	.	.	.	.	.	York Farm,	do.	Leg crushed between mine cars.
Nov. 3,	Pat. Dorian,	.	.	.	.	.	Orto,	do.	Leg broken, caught between locomotive and car.
6,	James McGee,	.	.	.	.	.	No. 8 Colly L. C. & N. Co.	do.	Burned by explosion of gas.
6,	John McMonigal,	.	.	.	.	.	do.	do.	Burned by explosion of gas.
25,	John Kennishas,	.	.	.	.	.	Eagle H ll,	do.	Face, arms and breast injured by premature blast.
28,	Ant. Eranoski,	.	.	.	.	.	do.	do.	Face, arms and breast injured by premature blast.
Dec. 7,	Elias Hopkins,	.	.	.	.	.	York Farm,	do.	Burned by an explosion of gas.
7,	John A. Martin,	.	.	.	.	.	do.	do.	Driver; squeezed between mine car and timber.
7,	Pat. Purrell,	.	.	.	.	.	do.	do.	
8,	John Green,	.	.	.	.	.	do.	do.	



BITUMINOUS MINE DISTRICTS.



FIRST BITUMINOUS DISTRICT.

(ALLEGHENY, WASHINGTON, WESTMORELAND, FAYETTE
AND GREENE COUNTIES.)

Hon. Thomas J. Stewart, Secretary of Internal Affairs:

Sir: In compliance with article ninth, section eleventh, of an Act, entitled "An Act relating to Bituminous coal mines, and providing for the lives, health, safety and welfare of persons employed therein," approved May 15, 1893, I have the honor of herewith presenting my annual report as Inspector of Mines for the year ending December 31, 1893, for the first bituminous coal district of Pennsylvania, now composed of all that portion of Washington county, commencing at White Hall station on the line of the Wheeling division of the Baltimore and Ohio Railroad, thence along said railroad adjacent to and South of the same to the State line between Pennsylvania and West Virginia, thence along said State line to the extreme Southwestern corner of Greene county, thence easterly along the boundary line between West Virginia and Pennsylvania to the east bank of the Monongahela river, thence along the east shore of the Monongahela river, including the mines adjacent thereto, to Lock No. 3, thence crossing the said Monongahela river at Lock No. 3, and following the west shore of the same to Risher station, thence in a westerly direction to the Wheeling division of the Baltimore and Ohio Railroad, thence along said railroad adjacent to and south of the same to White Hall station, the place of beginning.

I am sorry to report that there were twenty-five fatal accidents, being an increase of one over the year 1892. The non-fatal ones, as reported in the Operators' Annual, is seventy-seven, being an increase over the previous year of twenty-two, but some of these, no doubt, were of a slight nature, as but fifty-five were reported to this office by the mine foreman. As a result of the above fatal accidents, fifteen widows and fifty-five orphans mourn the loss of husbands and fathers.

The production of coal during the year was 4,876,307 tons, which is an increase of 576,870 tons over that of 1892.

Accompanying this report are the usual tables, together with a short description of each mine in the district. The fatal accidents and the cause which lead to them, is recorded under the head of "Fatal Accidents."

The mines of the district which have water and railroad shipping facilities are classed under the head of "Mines on the Monongahela River."

During the year, four new mines have been opened, and one (the "Merchant") has been abandoned.

Taking it to be to the best interest of this department, I have given some space to the Cincinnati mine (see description of the mine in body of report) of Messrs. Charles Jutte & Co., regarding the necessary openings, to which the reader is referred.

On May 18th, I issued a circular to the mine foremen of the district requesting their presence at a meeting on the 27th. A large number attended and after reading the new act at length, the part pertaining particularly to the duties of the mine foreman was then taken up, and I am pleased to say that the meeting has been productive of good results.

Taken as a whole, the mines of the district are in a fair condition.

A map of the proposed slope at the Cincinnati mine, as recommended by the board of viewers, is also made a part of this report.

All of which is respectfully submitted.

HENRY LOUTTIT,

Inspector.

Monongahela City, March 15, 1894.

MINING STATISTICS.

Number of mines in the district, ...	73
Number of tons of coal mined, ...	4,876,307
Number of tons of coal shipped, ...	4,867,658
Number of days worked as reported, ...	10,910
Number of miners employed, ...	8,030
Number of other persons employed inside, ...	1,300
Number of persons employed outside, ...	784
Total number employed, ...	10,114
Number of horses and mules, ...	610
Number of mine locomotives, ...	5
Number of steam boilers in use, ...	102
Number of coke ovens reported, ...	6
Number of kegs of powder reported as used in the mines, ..	12,490
Number of fatal accidents, ...	25
Number of non-fatal accidents, ...	55
Number of tons of coal produced per each fatal accident, ..	195,052
Number of tons of coal produced per each non-fatal accident, ...	88,660
Number of widows by these casualties, ...	15
Number of orphans by these casualties, ...	55
Number of persons employed per fatal casualty, ...	404
Number of persons employed per non-fatal casualty, ...	183

Causes of Accidents.	Fatal.	Non-fatal.
By falls of slate, ...	16	27
By falls of coal, ...	2	4
By falls of coal and slate, ...	3	3
By Dilly trip, ...	2	
By cars, ...	1	8
By fire-damp, ...		2
By being caught between car and coal pillar, ...	1	
Miscellaneous, ...		11
Total, ...	25	55

MINES ON THE MONONGAHELA RIVER.

Knob.—Among the improvements made at this mine during the year, is an endless rope haulage. The engines for the plant are placed at the bottom of slope—a distance of 1,500 feet from entrance of same, and are supplied with steam from a boiler situated on the outside and carried in pipes through the “return.”

The line used is of steel, one inch in diameter, which carries thirty-two cars, with an average speed of forty-five feet per minute. The length of this haulage is 1,095 feet.

On my last examination of this mine, I found it in fair condition. Mine foreman, John D. Bakewell.

Vesta No. 3.—When examined last this mine was in a fair condition. The out-let air measurement showed nineteen thousand nine hundred and eighty cubic feet. Joseph Owens, mine foreman.

Bunola.—Mine not in operation on my last visit. Mine foreman, John Forsyth.

Coal Centre.—As this mine is operated in three sections, each section is described and the condition of the same given.

First Hill.—One hundred and sixteen persons are employed in this part of the mine. On examination I found the ventilation anything but satisfactory. Owing to the illness of the mine foreman, which necessitated his absence from the mine, the furnace which should have produced the necessary air current was not attended to in the proper manner by the party who was assigned to this work, consequently the condition was as above stated.

Old Hill.—These workings are nearly exhausted, and when examined were in a fair condition as regards ventilation and drainage. Number of persons employed, 33.

Lilley.—This part of the workings, is, in a general way, satisfac-

tory. On my last visit they were driving but four entries and three rooms. Mine foreman, Samuel Kent.

Cliff.—This mine was, on my last visit, in fair condition. Maurice Beedle, mine foreman.

Cincinnati.—The opening designated as the second one, has for some time been in a very unsatisfactory condition, owing to its not being continuous. This opening intersected the main entry quite a distance from the main workings, making it practically of very little use for the purpose for which it was intended. I repeatedly called the attention of the management to the matter, but nothing of a definite character was done, and not being able to see my way clear under the Act of June 30, 1885, the matter was allowed to drop, but after the passage of the present Act, I again, brought the matter before the company, and there still being a difference of opinion as to the meaning of said Act, it was mutually agreed to bring the matter before the court. With this end in view, I notified the company as follows:

Monongahela City, Pa., September 27, 1893.

Messrs. C. Jutte & Co., Pittsburgh, Pa.:

Dear Sirs: Your attention is called to an Act, entitled "An Act relating to Bituminous coal mines and providing for the lives, health, safety and welfare of persons employed therein," approved May 15, 1893.

Section one, article two, says: "It shall not be lawful for the operator, superintendent or mine foreman of any Bituminous coal mine, to employ more than twenty persons within said coal mine or permit more than twenty persons to be employed therein at any one time, unless they are in communication with at least two available openings to the surface from each seam or stratum of coal worked in such mine, exclusive of the furnace upcast shaft or slope."

Section two of the same article says, among other things, that, "where the two openings shall not have been provided as required hereinbefore by this Act, the Mine Inspector shall cause the second to be made without delay."

The following is the full text of section three of the aforesaid article.

"Unless the Mine Inspector shall deem it impracticable, all mines shall have at least two entries or other passage-ways, one of which shall lead from the main entrance, and the other from the other opening into the body of the mine, and said two passage-ways shall be kept well drained and in a safe condition for persons to travel therein throughout their whole length so as to obtain, in cases of emergency, a second way of egress from the workings.

I take it that the above is not complied with in your Cincinnati mine, and to make two openings, as required by the section quoted, would be impracticable.

The section says further, that "No part of said workings shall at any time be driven more than three hundred feet in advance of the aforesaid passage-ways except entries, airways or other narrow work, but should an opening to the surface be provided from the interior of the mine, the passage-ways aforesaid may be made and maintained therefrom into the working part of the mine, and this shall be deemed sufficient compliance with the provisions of this Act relative thereto. Said two passage-ways shall be separated by pillars of coal or other strata of sufficient strength and width." The workings of the Cincinnati mine are not in compliance with this part of the section.

Now with due regard for your welfare and for the lives, health, safety and welfare of the persons employed in your Cincinnati mine, I hereby notify you to make, or cause to be made, a second available opening so as to comply with the Act (relative to the openings) without delay.

Yours truly,

HENRY LOUTTIT,
Inspector of Mines.

In due time after the receipt of the above notice, Messrs. C. Jutte & Co., through their attorneys, made the following appeal to the court of quarter sessions of Washington county, Pa.

In re.

Appeal of C. Jutte & Co. from decision of Henry Louttit, Mine Inspector.	}	No..... In the Court of Quarter Sessions of Washington county, Pa.
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To the Hon. J. A. McIlvaine, Judge of the Court of Quarter Sessions of Washington county, Pa.

The petition of C. Jutte & Co., by A. M. Todd their attorney, respectfully represents:

That the petitioners are engaged in the business of mining and transportation of coal and are operating as one of their mines, a mine known as the Cincinnati works, situate in Washington county on the Monongahela river. That said works are being run to the best advantage of the petitioner and with due regard to the safety and convenience of its employes.

That on September 27, 1893, the petitioner received a notice from Henry Louttit, Inspector of Mines, for the First District of Pennsylvania, requiring it "To make or cause to be made a second available opening so as to comply with the Act (relative to the openings) without delay." The Act referred to, being an Act approved May 15, 1893. A copy of the letter of said Inspector is hereto attached and made

part of this petition. The petitioner is not satisfied with the decision of the Mine Inspector and desires to appeal therefrom.

It therefore prays that it may be permitted to enter this appeal, and that three practical, reputable, competent and disinterested persons may be appointed by the court to forthwith examine said Cincinnati mine and report under oath the facts, together with their opinion thereon, and that petitioner be allowed to operate said mine pending said inspection and report, and the decision of the Court thereon.

A hearing was granted in the above and the following order was made by the Court.

Commonwealth of Pennsylvania, Washington county, ss:

Whereas, at a Court of Quarter Sessions of the Peace of the county of Washington, held at Washington in and for said county, on the 4th day of October, A. D. 1893, before the Honorable Judge of said Court, upon due consideration of the petition of C. Jutte & Co., operators of the Cincinnati coal mines in said county, the following order was made, to wit: "And now, October 4th, 1893, it being made to appear to the Court that Henry Louttit, Inspector of Mines, in the discharge of his official duties, on the 27th day of September, 1893, notified C. Jutte & Co., coal operators of the Cincinnati coal mines, in said county, "to make or cause to be made a second available opening for their said mine, so as to comply with the provisions of the first section of article two of the Act of Assembly, entitled "An Act relating to Bituminous coal mines, and providing for the lives, health, safety and welfare of persons employed therein," approved May 15th, 1893; and the said C. Jutte & Co., having within seven days of the service of this notice upon them, asked the Court for leave to file an appeal from the said decision and order the said Inspector of Mines, it is ordered:

1st. That the appeal of the said Jutte & Co., be allowed and minuted on the records of this Court.

2d. That D. M. Anderson, coal operator, Henry Cook, miner, and George D. Jenkins, civil engineer, be and they are hereby appointed, under the provisions of the second section of the fourteenth article of said Act of Assembly, to examine said Cincinnati coal mines, and the manner in which miners therein have ingress and egress, and the causes of the complaint made by the said Henry Louttit, Inspector of Mines, in his notice of September 27, 1893, served upon said C. Jutte & Co.

3d. That the said D. M. Anderson, Henry Cook and George D. Jenkins shall meet at the Cincinnati mine on October 13, 1893, at 10 o'clock A. M. to enter upon the discharge of their duties, and within thirty days after the date of this order, report, under oath, to this

Court, the facts as they exist, or may have been, touching the condition of said mine, and their opinion in regard to the question whether or not the said C. Jutte & Co., are operating their said mine in violation to the provisions of the 1st, 2d and 3d sections of Article 2 of said Act of Assembly, approved May 15, 1893, and whether said order of said Henry Louttit should be enforced.

4th. That Henry Louttit, Inspector of Mines, and C. Jutte & Co., or their agent in charge of said mine, shall have notice of this time when said appointees of this Court will visit and inspect said mine, and that the order of the said Henry Louttit, contained in his notice of September 27, 1893, be stayed until the determination of this appeal, or further order of this Court.

Now, this is to order and direct that you, the said D. M. Anderson Henry Cook and George D. Jenkins, visit the said Cincinnati mines, operated by the said C. Jutte & Co., at the time appointed, and examine the said mines and the manner in which the mines have ingress and egress to the same, and examine into the complaint of the said Henry Louttit, Inspector of Mines, and that you make report, under oath, as required by the terms of said order.

Witness the Honorable J. A. McIlvaine, Judge of said Court, at Washington, this 4th day of October, one thousand eight hundred and ninety-three.

Signed

M. R. ALLEN,
Clerk.

To C. Jutte & Co., and Henry Louttit, Inspector of Mines:

You will take notice of the foregoing order of Court, and govern yourselves accordingly.

Signed

M. R. ALLEN,
Clerk.

In pursuance of the above the viewers met at the Cincinnati mine, and after fully acquainting themselves of the facts in the case made the following report:

In Re-Appeal
of
Jutte and Company from the
decision of Henry Louttit, In-
spector of Mines.

} In the Court of Quarter Sessions
of Washington county, Pa.

} No.—, August term, 1893.

To the Honorable J. A. McIlvaine, Judge of said Court:

The undersigned, appointed board of viewers and examiners, as shown by the annexed order, for the purpose therein set forth, respectfully report:

That in pursuance of said order, they met on the 13th day of October, 1893, on the property of the said Cincinnati coal mines, and having been duly sworn, as directed in said order (proof of due notice of the time and place of holding said view having been given to all parties, being made) and Henry Louttit, Inspector of Mines, appearing for the Commonwealth, and James A. Wiley, Esq., appearing for said company, and having viewed the said mines, they do determine and report as follows:

That said Cincinnati coal mines is owned and operated by Jutte and Company, and is a drift mine; the length of the main entry of the same being one and one-half miles. The number of men employed therein is about 150.

This is a drift opening, in which the ventilation is produced by a 16-foot diameter fan, operated at the present time as a force. An air shaft eight feet in diameter is located about one and one-half miles from the pit mouth, through which the air escapes, after being forced through the mine (said fan being near the pit mouth on the Monongahela river), said air shaft is 208 feet in depth.

Said board further finds that the said mine is not now operated in accordance with the provisions of the Act approved May 15, 1893, relating to Bituminous coal mines, in regard to its openings, and sustains the decision of the Mine Inspector in that particular.

The board would suggest that in order that the workings of said mine comply with said Act, the owners and operators thereof be required to forthwith begin work upon and prosecute the same diligently, actively and continuously to completion, unavoidable accidents and delays excepted, a slope opening as shown by the plot attached to this report.

During the interval, prior to the completion of said slope opening, said board would suggest that a windlass of sufficient strength, with ropes and buckets attached, be constructed, in said above mentioned air shaft, that said windlass and apparatus connected therewith shall be at all times, during said interval, kept in good order and repair, so that the same can be used immediately in case of accident.

Witness our hands and seals this 13th day of October, A. D. 1893.

Signed,

D. M. ANDERSON, (Seal.)

HENRY COOK, (Seal.)

GEO. D. JENKINS. (Seal.)

On presentation of the above report to the Court, the following order was made, viz:

And now, October 16, 1893, the foregoing report of viewers, and examiners, having been presented in open court, and it appearing that Jutte & Co., and Henry Louttit, Mine Inspector, have knowledge of the contents and requirements of said report, and that they had notice

that said report would this day be filed in court, and would be presented for approval, it is ordered, adjudged and decreed that said report, and the findings and recommendations therein contained be, and the same are hereby approved, Nisi, ten days, and if no exceptions be filed within said ten days that then said approval become absolute, as provided by the second section of article 14, of the Act of May 15, 1893, No. 48 of the laws of Pennsylvania, session of 1893, and it is further ordered that the appellants Jutte & Co., pay the costs of this proceeding if this Nisi approval shall become absolute.

By the Court.

Upon receipt of the order of approval by the Court, Jutte & Co immediately arranged to comply with the suggestions made by the board of viewers and examiners.

The mine, on my last examination, was in a satisfactory condition, as regards ventilation and drainage. Mine foreman, Alexander Gray.

Umpire.—When examined last, the general condition of this mine was fair. Aquilla Underwood, mine foreman.

Apollo.—This is a new drift opening, located a short distance south of Fayette City mine. The main entry is driven through part of the old workings of the now abandoned mine of John Rutherford, which was in such a condition that some two hundred and fifty yards of it had to be timbered. When examined last, I found that some of the entries were driven in advance of the air current, but otherwise the mine was in fair condition. Mine foreman, Samuel Smith.

Snow Hill.—On my last visit to this mine, the general condition of the same was satisfactory. Inlet air measurement showed forty thousand cubic feet. Employed inside on the above visit, one hundred and twenty-two persons. John McVicker, mine foreman.

Caledonia.—When examined last, only a few entries were being driven. The general condition of the mine, as regards ventilation and drainage, was satisfactory. Inlet air measurement, as shown by the instrument, was twenty-one thousand cubic feet. Mine foreman, W. S. Gibson.

Clipper.—On my last examination of this mine, I found the ventilation, in parts of the same, unsatisfactory. The inlet air measurement showed ten thousand four hundred and forty cubic feet entering the mine. This quantity, before reaching the working faces, was somewhat impregnated by carbonic acid gas (black damp) which was escaping from some of the old workings. I called the attention of the superintendent and mine foreman to the matter and urged them to ventilate the mine properly without unnecessary delay. This they promised to do. Mine foreman, Henry Wilds.

Abe Hays.—This mine, when visited last, was not in operation. W. J. Mollison, mine foreman.

Milnesville.—On my last examination of this mine, I found the ventilation, in parts of the same, very unsatisfactory, owing to a door, which was placed a short distance from the mouth of the mine standing open, and as a consequence, the air from the fan, or the greater part of it at least, was returning to the outer atmosphere and only a small portion moving in the working places. I measured twenty-two thousand five hundred cubic feet of air passing the former point, but could not get any instrument result in the interior of the mine, as the air was at such a low velocity. I notified the mine foreman, also the superintendent, to employ an attendant at the aforesaid door in accordance with article 4, section 3, of the Act of May 15, 1893. Mine foreman, Alexander Thomson.

Stony Hill.—This mine, on my last visit, was in fair condition. Richard Stevenson, mine foreman.

Hilldale.—Was, when last examined, in a satisfactory condition. Improvements were being made to facilitate the haulage, and the matter of ventilation for the future was not being lost sight of. Mine foreman, George Hayes.

Camden.—On my last visit, this mine was, in a general way, satisfactory. Mine foreman, Henry G. Heath.

Amity.—On my last visit to this mine, there was employed inside one hundred and ninety persons. The general condition of the mine was satisfactory. This mine is worked in two sections, viz: No. 1 and No. 2—each being ventilated separately. The mine is worked on the double entry system, with the addition of face entries crossing them at intervals of one hundred and fifty yards. From the latter, an opening is made into the room running parallel with it so as to make the intersection at or near its face when driven up its distance, the object being to course a current of air into and over the falls, so as to keep them clear, as far as practicable, of any noxious gases that might be generated; and as each succeeding room on the tier is finished and the pilars removed, the same course can be pursued. Mine foreman, Jacob Heasley.

Leonard.—This is a small opening, located on the west side of the river, some six miles above Brownsville. On my last visit the mine was in fair condition.

Crothers.—This also is a new opening, located on the east side of the river, a short distance south of the Leonard mine, and when visited there were only a few persons employed.

New Eagle.—On November 11, 1892, I called attention of the operator of this mine to the fact that it was being operated in violation of the Act of June 30, 1885, in regard to a second available opening, but no apparent notice was taken of the same, and shortly after, operations were suspended and the mine remained idle until June, 1893. On June 15 I re-visited the mine and found that no second opening was

yet completed, or was any progress being made in that direction. The mine was idle for a short time after this, and on visiting it again on July 7, I found the same state of affairs existing; so I took it that in this case, also, patience had ceased to be a virtue, and the only course left for the writer was to force matters to an issue, and so with this end in view I notified the operator of the mine as follows:

Monongahela City, Pa., July 7, 1893.

Thomas Cain, Esq., Homestead, Pa.:

Dear Sir: Today, while on a visit to your New Eagle mine, I found more than twenty persons inside and no second opening, as required by section 1 of article 2 of an Act, entitled "An Act relating to Bituminous coal mines, and providing for the lives, health, safety and welfare of persons employed therein," approved May 15, 1893.

I notified you on November 11, 1892, and again on the 12th day of June last, but it seems that nothing has been done to comply with the law, but on the contrary nothing but utter contempt has been shown for my letters in this connection. Now I hereby give you notice that if I do not hear from you in a favorable manner, and in conformity with the act above quoted, I will give the matter into the hands of the proper authorities for adjustment.

So that there may be no misunderstanding in regard to what is required, I give the following extract from the Act regarding the second opening:

"It shall not be lawful for the operator, superintendent or mine foreman of any Bituminous coal mine to employ more than twenty persons within said coal mine, or permit more than twenty persons to be employed therein at any one time, unless they are in communication with at least two available openings to the surface from each seam or stratum of coal worked in such mine, exclusive of the furnace upcast shaft or slope."

I expect to hear from you on or before the evening of the 10th instant.

Yours truly,

HENRY LOUTTIT,
Inspector of Mines.

The above letter had the desired effect, for when I visited the mine on July 12, they had made arrangements that not more than twenty persons should be employed or permitted in the mine at one and the same time until the second opening was completed.

A shaft was then started and completed, to be used for this purpose. On my last visit to the mine, I found it, as regards ventilation and drainage, satisfactory. Mine foreman, William Louttit.

Walton's Upper Mine.—This mine, when last examined, was in fair condition. Mine foreman, D. W. Phillipps.

Walton's Lower Mine.—This mine, on my last visit, was in fair condition. William G. Murray, mine foreman.

Vesta No. 1.—During the year, a complete haulage plant has been introduced into this mine. The boiler being twenty feet long and thirty-four inches in diameter. Laughlin patent. Number of boilers, two, each boiler having forty-eight flues. The engines are 16 inches by 30 inches—the line is of steel and $\frac{5}{8}$ inches in diameter. The mining is done by compressed air machines, of the Harrison patent. A coal crusher has been erected on the tippie, so as to prepare the product of the mine for the blast furnace of the company.

On July 8, while the main air-course was being driven, it holed (in the bearing in) into the old workings of the Clipper mine, which when holed, showed the presence of fire damp. The place was stopped so as to prevent any danger from this cause until arrangements could be made to remove the gas as far as possible. The writer on being informed of the matter, a consultation was held with the officials of the mine, and it was concluded to open the place up on the evening of August 5th, while no other persons were at work in the mine, except those who were engaged at this particular point. On opening up the place, large volumes of gas came off and continued to do so for some time, and then it gradually fell off in quantity. So it was evident that other means would have to be employed to remove it with any degree of speed, consistent with safety; and brattice cloth was brought into requisition, this was placed on the falls, and a current of air was forced in and around this point for some ninety-six hours, when it was considered safe to resume operations.

The main air course followed the old workings for two hundred and forty feet. The main entry also holed, but only in the pillar. This part (as I am informed) of the workings of Clipper mine was abandoned previous to the passage of Act of April 18, 1877, and as far as can be learned by the writer, no plan of the workings are in existence, but it is shown by the Vesta plan, that some four rooms have been driven across the line and two hundred feet beyond.

When last examined, the mine was, as regards its general condition, satisfactory. Mine foreman, Edwin Boyle.

Rostraver.—This mine, when last examined, was in fair condition. Mine foreman, James Furrie.

Washington.—On my last examination of this mine, I found the ventilation not up to the legal requirements. I notified the company of the matter, and they promised to remedy it and have their mine so as to conform to the Act of Assembly.

Several rooms and a face entry were being driven from No. 5 entry—"Left"—and unexpectedly one of the former holed into the abandoned part of the workings of the Turnbull & Hall part of the mine. When

holed, fire damp was detected, and this state of affairs seemed to have had no terrors for them as no bore-holes were kept ahead of the workings going toward the abandoned parts as required by the Act. A shot was fired in the face entry which holed into the aforesaid Turnbull & Hall part, and came very near causing an explosion, which would have been very disastrous, as the mine was at work, when the holing was done; but fortunately the gas burned quietly at the mouth of the aperture made by the shot, and did not reach the body of fire damp lying in the old workings, owing to its not having been mixed with air sufficiently to explode. The flame was extinguished, the place opened up and the gas taken off, and when the writer visited the place afterwards, he could not detect any gas in this part of the mine as far as we could get (having been stopped by the falls). I ordered boreholes to be kept on all such places hereafter and for them not to depend so much on "information" received. Mine foreman, Foster G. Watson.

Albany.—On my last visit to this mine, I found it, in a general way, satisfactory. Mine foreman, William Seddon.

Black Diamond.—When visited last was in a satisfactory condition. Mine foreman, Malcolm Cockrane.

Champion.—Not in operation on my last visit. Mine foreman, Thomas Gainor.

Catsburgh.—When examined last, I found the general condition satisfactory. Mine foreman, John P. N. Coulter.

Beaumont.—The general condition of the right side of this mine, on my last visit, was satisfactory, but the left side required improvement in ventilation. Mine foreman, John Stathem.

Buffalo.—On my last examination of this mine, the general condition was fair. William Gillie, mine foreman.

Mongah.—Among the improvements made at this mine during the year, is a new tippie (the temporary one, which was built in 1891, having been torn down), with double drop schutes and other necessary appliances. A full and complete electric mining plant, of the Jeffrey patent, has also been put in. When examined last they were employing four machine men, eight fillers and two other persons inside. The ventilation is produced by a section of a boiler standing vertically. The condition of the mine, as regards ventilation, required improvement in part of the same.

Jefferson.—On my last visit to this mine it was not in operation. Mine foreman, Andrew Frazer.

Coal Bluff.—When examined last, the drainage of the mine was fair, but the ventilation was inadequate in parts. The ventilator (a furnace) at this mine, had not sufficient power to produce the quantity of air needed, owing to its distance from the face of the workings, coupled with the frictional resistance in the air passages. To remedy

this, a shaft has been sunk near face of workings, which will be used on the completion of two entries which are now being driven. During the year, a wire rope haulage has been put in. Mine foreman, Joseph W. Huot.

Stockdale.—On my last examination of this mine, I found the ventilation fair, but the drainage required improvement in parts of the mine. Mine foreman, John Crombie.

Rock Run.—On my last visit, was in fair condition. Mine foreman, James Henderson.

Vigilant.—When visited last, the general condition, as regards ventilation and drainage, was fair. Mine foreman, R. C. Campbell.

Banner.—When I examined this mine last, the ventilation was not up to the legal requirements, but a shaft has since been put down and from its location the air-route has been materially reduced and with the same power employed, an increased quantity of air will be maintained. Joseph Penman, Mine foreman.

Crescent.—On examination of this mine, I found the ventilation required improvement in parts of the same. Mine foreman, Elijah Dainty.

Allequippa.—This mine was, in a general way, satisfactory on my last examination. Thomas Howell, mine foreman.

Eclipse—(River). Not in operation on my last visit. William Minford, mine foreman.

Climax.—The inlet air measurement showed twenty-seven thousand two hundred and eighty-five cubic feet. Number of persons employed inside, one hundred and thirty-three. The condition of the mine, as regards ventilation, was fair, but the drainage required improvement. John McMinimy, mine foreman.

Stonesburgh.—Not in operation on my last visit. John J. Johnson, mine foreman.

Chamouni.—This is a new slope opening, located on the east side of the river, a short distance above California. Ground was broken for this plant October 14, 1892, by R. C. Campbell, who put down the slope, which is two hundred and thirty-five feet long 7 feet by 6 feet, with a dip of one foot in eight. They also built a temporary tippie, but after loading one flat of coal the mine passed into the hands of the Brownsville Coal Company, who made an additional slope, sunk a shaft for ventilation, built a new tippie and equipped the same with the necessary appliances for the handling of the product of the mine. Entries are now being driven, rooms turned, etc., to open up the mine. Mine foreman, Henry Reitz.

Old Eagle.—On my last visit to this mine, I found it in a satisfactory condition. James Black, mine foreman.

Ivill.—The drainage of this mine, in a general way, on my last ex-

amination, was satisfactory, but the ventilation required improvement. Mine foreman, William Holsing.

Little Redstone.—In operation one hundred and sixty eight days during the year. Condition of mine on my last visit fair. Fire damp is generated pretty freely in this mine, and as a consequence it requires the careful attention of those in charge to prevent accidents from an explosion of gas. Two entries are now being driven to daylight for the purpose of ventilation and for additional means of ingress and egress. Mine foreman, Joseph Gartley.

Ella.—During the year a complete electric mining plant has been put in at this mine. A new system of working coal has been adopted here, but as it is not advanced sufficiently to form conclusions as to its merit, we will leave it for our next report. A ventilating fan 16 feet in diameter will be placed in position as soon as it can be built. The mine was in fair condition on my last examination. Joseph Blower, mine foreman.

Watson.—This mine consists of double main heading and eight cross headings. The principal main heading is three thousand one hundred and fifty feet long, while the other is two thousand and seventy-five feet. The gradient of those headings is undulating, with a general rise towards their heads. At this point the levels taken shows that they are 23.16 feet above the mouth of heading. There are employed at this mine one hundred and forty-five miners, five drivers and other persons. The drainage was fair, but the ventilation was inadequate when examined last. Mine foreman, Joseph Cartwright.

MINES LOCATED ON THE PITTSBURG AND WHEELING DIVISION OF THE BALTIMORE AND OHIO RAILROAD.

Snowdon.—On my last visit to this mine I found it in fair condition. Mine foreman, James Porter.

Eclipse.—The ventilation in part of this mine was unsatisfactory when I examined it last, owing to the improper distribution of the ventilating currents. The drainage also needed attention. Two Clark fans are at work at this mine, one on the mine and the other on the tunnel where the locomotive runs. Richard Jones, mine foreman.

Gastonville.—Mine in fair condition on my last examination. Mine foreman, William Beane.

Nottingham.—In operation two hundred and thirty-nine days during the year. On examining this mine I found the ventilation not properly conducted to the workings, owing to the inadequacy of the means employed to course the air current. The outlet air measurement showed twenty thousand six hundred and forty cubic feet passing the furnace. Drainage fair. James Kerr, mine foreman.

Germania.—The general condition of this mine on my last visit was satisfactory. John Burk, mine foreman.

Hackett.—The condition of this mine, on my last examination, fairly satisfactory. Mine foreman, John Watson.

Anderson.—Among the improvements made at this mine during the year, is the raising of the tippie some two feet. Sidings have been raised and improved. A Yough steam pump has been placed in position for mine drainage and a general improvement has been made in the mine to increase the ventilation and haulage. On my last visit there were employed one hundred and fifty-two miners, three boys, five drivers and eight other persons inside and six outside. Robert Howey, mine foreman.

MINES LOCATED ON THE MONONGAHELA DIVISION OF THE PENNSYLVANIA RAILROAD.

Allen.—This mine was in operation one hundred and forty two days during the year. Persons employed inside, one hundred and nineteen. Condition of mine when examined last, fair. Mine foreman, William Crockett.

Charleroi.—The general condition of this mine on my last visit was satisfactory. Hugh Craig, mine foreman.

Fidelity.—When examined, I found the same fairly satisfactory. Henry Kinlock, mine foreman.

Acme.—The ventilation of this mine, on my last visit, was unsatisfactory in parts, owing to the want of regulators in proper places to control the air current. As it was, some parts of the mine were well ventilated, while others were deficient. There was no excuse for this state of affairs, for there was an ample quantity of air entering the mine. The instrument showed that there was twenty-four thousand two hundred and forty cubic feet, and only one hundred and nineteen persons employed inside. Mine foreman, Robert Sneddon.

Courtney.—The ventilation of this mine was not satisfactory on my last examination. This was owing to the location of the furnace, which was quite a distance from the working faces and of not sufficient power to produce the volume of air required. It was evident that the cause of this was the frictional resistance of the air through the mine. To remedy this, entry No. 27 was driven to daylight, thereby reducing the length of air routes over a mile and at the same time doing away with a great many angles, which retarded the ventilation before the change. It is proposed to take the air in at this opening, as it is near the face of the workings; this will give the workmen air direct from the outside. Mine foreman, Thomas Watson.

DUNLAP'S CREEK MINE.

Chalfant.—In operation two hundred and sixteen days during the year. Persons employed inside, on my last visit, nine. The inlet air measurement showed four thousand four hundred cubic feet entering the mine. Mine foreman, Moses Ramage.

GREENE COUNTY MINES.

There are a number of small mines in the above county, but none of them give employment to a sufficient number of persons to come under the provisions of the law.

MINES ON THE BELLE VERNON DIVISION OF THE PITTSBURG AND LAKE ERIE RAILROAD.

Cleveland.—The sanitary condition of this mine has been considerably improved during the year by the erection of a new ventilating furnace of the following dimensions: Length of arch 25 feet, with an elevation of $3\frac{1}{2}$ feet. From floor to top of bars, 3 feet. From bars to spring of arch, 2 feet. Radius, 4 feet, with air passages of 5 feet by 2 feet on either side. Fire surface, 64 square feet. The roof (at furnace) being protected by "T" rails of 78 pounds to the yard.

With an ordinary fire in the furnace, I measured forty thousand cubic feet of air passing. The frictional resistance to the ventilating current has been greatly reduced by the shortening of the air route and the reduction of a great many angles which have heretofore retarded the ventilation.

On my last visit, a few entries were driven ahead of the air, but otherwise the mine was in a satisfactory condition. Mine foreman, Nicholas Cole.

Shepler.—On my last visit to this mine, the ventilation in parts of the same was unsatisfactory. I notified the company in regard to the matter and they promised to remove this cause of complaint. Edward S. Mills, mine foreman.

Large.—On my last visit to this mine, the ventilation, in parts, was not up to the legal requirements. Drainage also needed attention. Mine foreman, Luke Creevey.

Manown.—The general condition of this mine, on my last visit, was fair, but the drainage required improvement.

Six compressed air mining machines, with all the necessary appliances to operate the same, have been put in during the year.

FATAL ACCIDENTS.

Peter Lawrence, a miner, aged ——— years, was fatally injured by a fall of coal, in entry 1, room 4, Charleroi mine, on the 9th day of January, and died some four hours after. The deceased was "undering off" his mining and while doing so some fifteen bushels of coal fell on
18-10-93.

him with the result as above stated. Lawrence was a widower and left three children.

Robert A. Topp, a miner, aged 24 years, was instantly killed by a fall of slate in entry 22, room 63, Old Eagle mine, on January 17. The condition of the room showed that some slate of a former cut had been left up, and under this the deceased made a small middle shot, which he fired but did not knock the coal down, and in attempting to take it down with a pick he loosened a piece of slate which fell on him. This piece measured 14 feet long, $3\frac{1}{2}$ feet wide and 10 inches thick. Topp leaves a widow and one child.

Andrew Mouzni, a miner, was fatally injured in Nottingham mine, January 30, by a fall of slate. The deceased and Martina Anders worked together in a "rib;" the former was "bearing in" next to the road, when a piece of slate 2 feet long, 2 feet wide and some 10 inches thick fell on him. The deceased lived some seven hours after being hurt. Mouzni was 23 years of age and single.

William Gerth, a miner, was fatally injured on February 10, in Fidelity mine, by a fall of slate. The deceased and John Dunning worked together and were cleaning up slate when a piece some 6 feet long, 6 feet wide and 10 inches thick fell on Gerth, injuring him so badly that he lived but four days after being hurt. Gerth left a widow and three children.

Mathew Acton, a miner, was fatally injured in Ivil mine, February 24, by being caught by the dilly trip. Acton was on his way out of the mine and when near the mine mouth, he attempted to pass the dilly, which was standing at this point, but before he could do so the trip started and caught the deceased, injuring him in such a manner that he died some eleven days after. Acton was 50 years of age and single.

Thomas Cuttin, a miner, aged 17 years, was instantly killed in Eclipse (railroad) mine by a fall of slate. The deceased and his father were working together, removing some slate which they had previously taken down, and while at this work a piece near the "road head," about $8\frac{1}{2}$ feet long, $2\frac{1}{2}$ feet in width and some 10 inches thick, fell on the former, resulting as above stated. This accident occurred on the 18th day of March.

Thomas Miller, a miner, aged 70 years, was fatally injured in room 3, entry 21, Catsburgh mine, April 5, by a fall of coal. The deceased was "bearing in" near head of "road way" when about four bushels of coal fell on him, injuring him in such a manner that he died on April 25. Miller left a widow and three children.

James Milburn and Dell Butler, miners, aged respectively 41 and 18 years, were instantly killed, in Champion mine, April 15, and William Hart and William Carson were seriously injured at the same time and place, by a fall of coal and slate. The above and Charles

Butler were taking out entry pillars and had the place undermined some 18 inches deep and 58 feet long, and to facilitate their work each one had his part of the work laid out and consequently were in front of the breast when it fell. Charles Butler being near the outer end escaped injury. The latter heard the coal and slate working and called to the others to "look out," but before they could get out of the way it resulted as above. In investigating this accident, it seems that Milburn's attention was called to the condition of the place, as regards to its safety, but he made answer that it was all right, and no effort was made by the unfortunate men to protect themselves, as it was evident that a place like this would be more or less squeezed, owing to its position and the length of time since the entry was driven. Milburn left a widow and two children. Butler was a single man.

Josiah Ingram, a miner, aged 47 years, was instantly killed in Albany mine, April 24. Ingram and his son were working together in entry 11 room 11 and while the former was at work opposite the road-head, loading a car, a piece of slate, known in mining parlance as a "pot," fell out, striking him with the result as above stated. The deceased left a widow and eight children.

Nicholas Hauser, a miner, was fatally injured by a fall of slate in Cleveland mine May 24. Died about one hour after the accident. The deceased and Oliver Johnson were working together and had about six feet of slate up. The former was loading a car at the head of the road-way, when a piece of slate $4\frac{3}{4}$ feet long, 3 feet wide and about 14 inches thick fell on him. Hauser left a wife and one child.

Samuel Ruble, a miner, aged — years, was instantly killed in Umpire mine, June 9, by a fall of slate. The deceased and James Harding worked together in room 3, entry 6. Immediately preceding the accident, they had been eating their dinner, the latter having finished, went back to the face of room, and took down some pieces of slate, and after sounding the slate which was still up, commenced to work on a half shearing. At this time Harding asked Ruble how the slate was, and the latter replied that he would put a post under it presently, but before he could do so the slate fell, resulting as above stated. Ruble left a widow and four children.

On June 6, Charles Cline, a miner, aged 34 years, was instantly killed by a fall of slate in Climax mine, while shearing up a "standing" shot. The slate which fell on deceased measured $6\frac{1}{2}$ feet long, 2 feet wide and 10 inches thick. Cline left a widow and four children.

William Smith, a miner, aged 32 years, was fatally injured in Clipper mine, June 6, by a fall of slate. Smith was working in a room and being in need of a cross-bar to put under some slate, he went to a "break-through" in the entry, where he had previously worked, to get one. To get this cross-bar it was necessary to take it from under

some standing slate, and in knocking out a post which the cross-bar rested upon, the slate fell and caught deceased, injuring him in such a manner that he lived but ten hours after. Deceased left a widow and three children.

Walter Ness, aged 13 years, was fatally injured in Catsburgh mine by being caught by the "dilly" trip. The deceased worked with his father and had finished the day's work, and on their way out the father was hailed by one of his fellow-workmen and stopped, the boy continuing on his way. When near the entrance of mine the boy was caught as above stated. William McDonald, a miner, found the unfortunate boy and reported the matter to the engineer, but by this time another miner, named Edward Garts, came to the boy gathered him in his arms and carried him outside. It is not known how the boy was caught, as the safety holes could have been made use of, but it is supposed that his light went out and as a consequence he could not see them. This boy was too young to travel a "dilly" road alone, while the machinery was in motion, but I am informed that he left his father without permission to do so. This accident occurred June 10.

Frank Trapass, a miner, 37 years of age, was fatally injured in Old Eagle mine, June 12. Trapass was mining coal for the steam boilers, and after loading a car, he (without authority) went to the stable and procured a mule to haul the car from his room, and while doing so, he being in front of same, fell and was caught between car and rib, injuring him so badly that he died two days later. He left a widow and one child.

On June 13, Joseph Scalles, a miner, was instantly killed by a fall of slate in room 26, entry 6, Buffalo mine. Mine foreman, William Gillie, found the deceased under the slate, while making a visit to the room. From the position of the body and the condition of the room, it seemed that the unfortunate man was cleaning up his room, when a piece of slate averaging $8\frac{1}{2}$ feet long, $2\frac{1}{2}$ feet wide and 10 inches thick, fell on him. Scalles was a single man, 45 years of age.

Joseph Lutes, a miner, 30 years of age, was instantly killed in Stony Hill mine, July 8, by a fall of slate. The deceased was knocking coal under a piece of slate, 5 feet long, 2 feet wide and 10 inches thick, when it fell on him with the above stated result. Lutes left a wife and two children.

On July 31, Christopher Kerner, a miner, aged 43 years, was instantly killed in entry 2, Manown mine, by a fall of slate. The deceased was loading coal from under the slate when a piece $6\frac{1}{2}$ feet long, 3 feet 2 inches wide and about 10 inches thick fell, with the result as above stated. Kerner knew the slate was unsafe, as he had told a fellow-miner named George Baker, who came into the entry to see him a short time previous to the accident, "to keep from under the slate."

With this knowledge, the deceased did not do anything to secure his safety. Comment is unnecessary. Kerner left a widow and eight children.

Samuel Tomilson, a miner, —years of age, was instantly killed, October 13, in entry 2 room 63, Manown mine, by a fall of slate. The deceased and son worked together and at the time of the accident the unfortunate man was using a crow-bar to bring down some coal, which was under some standing slate, when the slate fell with the result as above stated. The slate measured 8 feet long, 3 feet wide and 10 inches thick. Tomilson left a widow and four children.

Frederick Maifiedai, a miner, in Rostraver mine, on October 24, while undermining a "butt" shot, a piece of coal 5 feet long, 2 feet wide and full heighth of the breast, accompanied by the slate, fell, catching him and killing him instantly. Maifiedai was a single man, 27 years of age.

Louis Whaus, a miner, 55 years of age, was instantly killed in Acme mine, November 28, by a fall of slate. Robert Sneddon, mine foreman, was present when this accident occurred. Mr. Sneddon informed the writer that he had ordered the setting of posts under this slate, but it seems his orders were not carried out. Deceased left a widow and three children to mourn his untimely death.

John Losser, a miner, was fatally injured in Vigilant mine, December 7, by being struck by descending cars in slope. The deceased worked in the Crescent mine, and was on his way out, accompanied by Victor Bonnet and George Gilling. Bonnet hearing the cars coming, called to the others to get out of the way. Gilling escaped by getting to the roadside, but Losser, becoming confused, was struck. He was a single man, 25 years of age.

George Bromley, a miner, —years of age, was fatally injured December 8, in Coal Centre mine, by a fall of slate. The deceased and George Skilcorn worked together in entry 14, room 2. The former was filling coal from the right side of room, when a piece of slate 6 feet long, $2\frac{1}{2}$ feet wide and 10 inches thick fell on some coal which was in corner of room and slid down, injuring Bromley in such manner that he died from its effects January 6, 1894. Bromley left a widow and five children.

Michael Pollock, a miner, aged 32 years, was fatally injured in Acme mine, December 14, by a fall of slate. George Shingery and the unfortunate man worked together and were at work taking out slate posts, preparatory to taking the slate down. Shingery informed the writer that deceased had knocked out one post when the slate discharged four others, and before Pollock could get out of the way, a piece of slate $7\frac{1}{2}$ feet long, $2\frac{1}{2}$ feet wide and 10 inches thick fell on him, injuring him so badly that he died December 26.

TABLE No. 1—*Showing location, etc., of collieries in the First Bituminous Mine District.*

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Postoffice Address.
Appolo, ...	Charles Jutte & Co., ...	Fayette,	Charles Bradford,	Fayette City.
Albany, ...	Snowden & Hoag, ...	do.	Frank T. Hogg,	Brownsville.
Amity, ...	S. S. Crump & Co., ...	Allegheny,	S. S. Crump,	No. 8 Wood street, Pittsburg.
Allequippa, ...	Bailey Wilson & Co., ...	do.	W. W. Wilson,	Camden.
Acme, ...	Stockdale Coal Company, ...	Washington,	Charles W. Braynell,	Monarch.
Allen, ...	Allen Coal Company, ...	do.	do.	do.
Anderson, ...	Hon D. M. Anderson, ...	do.	T. E. Rolb,	Venitia.
Abe Hays, ...	Abe Hays Coal Company, ...	do.	T. S. Hutchinson,	Monongahela.
Banner, ...	J. M. Risher, ...	do.	do.	No. 8 Wood street, Pittsburg.
Blyth, ...	Blyth Coal Company, ...	do.	Thomas Cowell,	Speers.
Black Diamond, ...	W. H. Brown Son's, ...	do.	James Loutitt,	Monongahela.
Beaumont, ...	Beaumont Coal Company, ...	do.	John Leonard,	West Brownsville.
Bear, ...	Conley Gas Coal Company, ...	do.	Henry Bowyer,	Courtney.
Bunola, ...	O. Nell & Peterson, ...	Allegheny,	G. W. Peterson,	Bunola.
Cincinnati, ...	Chickaree & Co., ...	Washington,	William Davis,	Monongahela.
Cliff, ...	J. M. Risher, ...	do.	do.	No. 8 Wood street, Pittsburg.
Coal Bluff, ...	do.	do.	do.	do.
Coal Centre, ...	P. J. Forsythe & Co., ...	do.	P. J. Forsythe,	Coal Centre.
Catsburgh, ...	Catsburgh Coal Company, Limited, ...	do.	John H. Jones,	Monongahela.
Clippert, ...	do.	do.	A. A. Corey,	Braddock, Allegheny county.
Courtney, ...	Mingo Gas Coal Company, ...	do.	Allen Bradshaw,	Fleece.
Calidonia, ...	F. J. Wood, ...	do.	do.	do.
Champion, ...	do.	do.	Thomas Watkins,	Lock No. 4
Charlevot, ...	Charlevot Coal Company, ...	do.	R. J. Gregg,	California.
Crescent, ...	California Coal Company, ...	Allegheny,	B. M. Thomas,	Camden.
Camden, ...	George Lysle & Son, ...	do.	J. E. Cotton,	Brownsville.
Chalfont, ...	Dunlap Creek Coal Company, ...	Fayette,	James Fishburn,	do.
Chamoni, ...	Brownsville Coal Company, ...	do.	John McMurphy,	do.
Clinax, ...	Pittsburg and Bellevue Coal Company, ...	do.	David Bowdler,	California, Washington county.
Cedar Hill, ...	David Bowdler & Son, ...	do.	D. A. Robinson,	Bellevorn.
Cleveland, ...	J. H. Somner Fuel Company, ...	Washington,	R. F. McConaghy,	No. 8 Wood street, Pittsburg.
Delaware, ...	Osborne, Seager & Co., ...	do.	J. A. O'Neil,	Mekeesport Allegheny county.
Delapase River, ...	Delapase Coal Company, ...	Westmoreland,	James O'Neil,	Fayette City.
Ellis, ...	Ellis Coal Company, ...	Fayette,	Henry E. Kinlock,	Rosco.
Fidelity, ...	Pittsilly O. Company, ...	Washington,	T. M. Jones,	West Elizabeth.
Fulton, ...	Germania Gas Coal Company, ...	Allegheny,	John Banner,	Finleyville.
Germania, ...	Pittsburg and Chicago Gas Coal Company, ...	do.	do.	Gastonville.
Gastown, ...	Hachett Coal and Coke Company, ...	do.	do.	do.
Hachett, ...	do.	do.	do.	do.
Hildale, ...	Hildale Coal Company, ...	do.	James Jones,	Allegheny county.
Ivill, ...	James Jones, ...	do.	Kyan Beedle,	Monongahela.
Jefferson, ...	Thomas Foster & Son, ...	Allegheny,	do.	do.
Knob, ...	Knob Coal Company, ...	Washington,	D. B. Foster,	Coal Valley.
Little Alps, ...	Alps Coal Company, ...	Fayette,	S. H. Pearall,	Brownsville, Fayette county.
Little Redstone, ...	Little Redstone Coal Company, ...	do.	Joseph Underwood,	Roscoe, Washington county.
Milleville, ...	Robert Jenkins, ...	Allegheny,	J. T. Jones,	Fayette City.
Manown, ...	Youghiogheny Gas Coal Company, ...	do.	Laute Hornickle,	Sunny Side.
Mongah, ...	W. H. Brown Son's, ...	do.	James Loutitt,	Manown.
				Monongahela.

Nottingham.	Henry Florshelm.	Washington.	M. G. Gibson.	Finleyville.
New Eagle.	Mark Delany.	do.	John Johnson.	Monongahela.
New Webster.	W. B. Lorge.	Westmoreland.	R. B. Lorge.	Elizabeth, Allegheny county.
Old Eagle.	W. H. Brown, Son's.	Allegheny.	James Louttit.	Monongahela.
Rock Run.	Rosbury Coal Company.	Westmoreland.	D. G. Jones.	Lock No. 4, Washington county.
Rosstraver.	S. C. Snodgrass.	Allegheny.	James Henderson.	Camden.
Snowden.	Pittsburg and Chicago Gas Coal Company.	do.	John B. Rader.	Gastonville, Washington county.
Stonesburgh.	Stonesburgh Coal Company.	Fayette.	John S. Dixon.	Gastonsburg, Washington county.
Stony Hill.	John H. Dixon.	do.	John N. Dixon.	Roberts, Washington county.
Snow Hill.	Alps Coal Company.	do.	Joseph Underwood.	Roberts, Washington county.
Stockdale.	John Crumble.	Washington.	Thomas Cromble.	Webster, Westmoreland county.
Sheppler.	Stone & Nimmo.	Westmoreland.	James Laird.	McKeesport, Allegheny county.
Tremont.	John A. Wood & Son.	Fayette.	S. B. Graham.	Belleville.
Umpire.	C. L. Snowden & Co.	do.	John Simpson.	Brownsville.
Vigilant.	California, C.	Washington.	John A. Powell.	California.
Vesta No. 1.	Vesta Coal company.	do.	L. B. Drum.	do.
Vesta No. 2.	do.	do.	do.	do.
Vesta No. 3.	do.	do.	do.	do.
Walton Upper Mine.	Joseph Walten & Co.	Allegheny.	John W. Rike.	West Elizabeth.
Walton Lower Mine.	do.	do.	do.	do.
Watson.	Watson Coal Company.	do.	Joseph Cartwright.	Monongahela.
Washington.	Briggs & Flint.	Fayette.	T. S. Briggs.	Monarch, Washington county.

	17,005	17,005	209	27	1	4	100	4	4
Cedar Hill, Fayette county,	17,005	17,005	17,005	27	1	4	100	4	4
Cleveland, Fayette county,	176,138	176,138	231	175	1	1	1	12	1
Eclipse Railroad, Washington county,	96,700	96,700	250	174	1	1	1	1	1
Eclipse River, Washington county,	97,000	97,000	150	233	1	1	1	2	2
Ella, Westmoreland county,	72,308	72,308	150	95	1	2	1	1	1
Fayette City, Fayette county,	104,910	104,910	170	184	1	1	1	4	4
Fidelity, Washington county,	72,439	72,439	167	66	1	1	1	6	6
Fulton, Allegheny county,	21,453	21,453	70	114	1	1	1	7	7
Germania, Washington county,	30,837	30,837	243	130	1	1	1	1	1
Grassville, Washington county,	125,881	125,881	180	213	1	1	1	6	6
Hackett, Washington county,	125,881	125,881	220	144	1	1	1	10	10
Hill, Washington county,	37,687	37,687	220	144	1	1	1	1	1
Ivy Hill, Washington county,	176,138	176,138	193	188	1	2	1	8	8
Jefferson, Allegheny county,	86,371	86,371	189	119	1	1	1	9	9
Knob, Washington county,	57,865	57,865	100	210	1	1	1	11	11
Little Alps, Fayette county,	32,855	32,855	74	71	1	1	1	2	2
Little Redstone, Fayette county,	82,713	82,713	168	161	1	1	1	3	3
Milesville, Allegheny county,	47,644	47,644	164	121	1	1	1	10	10
Manown, Allegheny county,	187,060	187,060	258	194	2	5	100	7	7
Mongah, Allegheny county,	3,350	3,350	290	21	1	1	50	6	6
Monk, Allegheny county,	115,971	115,971	239	211	1	1	250	13	13
New Eagle, Washington county,	5,888	5,888	70	29	1	1	1	2	2
New Webster, Westmoreland county,	29,098	29,098	96	117	1	1	40	1	1
Old Eagle, Allegheny county,	91,209	91,209	235	213	2	2	100	6	6
Rostraver, Westmoreland county,	64,392	64,392	254	101	1	3	200	1	1
Rock Run, Allegheny county,	42,837	42,837	132	175	1	2	1	12	12
Snowden, Allegheny county,	113,432	113,432	197	189	1	4	48	2	2
Stonesburg, Allegheny county,*	20,000	20,000	133	133	1	1	1	8	8
Stony Hill, Fayette county,	73,473	73,473	139	123	1	1	1	1	1
Stony Hill, Fayette county,	57,348	57,348	135	123	1	1	230	2	2
Stony Hill, Fayette county,	57,348	57,348	135	123	1	1	15	1	1
Stony Hill, Fayette county,	47,212	47,212	171	133	1	1	90	2	2
Stony Hill, Fayette county,	75,963	75,963	158	100	1	1	1	3	3
Stony Hill, Fayette county,	55,120	55,120	151	183	1	1	495	5	5
Umpire, Fayette county,	105,700	105,700	281	265	1	1	1	12	12
Vigilant, Washington county,	105,146	105,146	225	106	1	1	1,130	1	1
Vesta No. 1, Washington county,	132,667	132,667	180	119	1	1	1,125	3	3
Vesta No. 2, Washington county,	66,147	66,147	113	99	1	1	1	8	8
Vesta No. 3, Washington county,	120,231	120,231	91	410	1	1	2	1	1
Walton Upper Mine, Allegheny county,	73,196	73,196	165	169	1	1	135	1	1
Walton, Lower Mine, Allegheny county,	72,935	72,935	168	166	1	1	500	8	8
Watson, Allegheny county,	4,876,658	4,876,658	168	166	1	1	1	1	1
Washington, Fayette county,	4,876,307	4,876,307	168	166	1	1	1	1	1
Total,	4,876,307	4,876,658	10,910	10,114	25	77	12,490	610	5
									6

* Estimated.

TABLE NO. 3.—Showing the number of each class of employes at each colliery in the First Bituminous Mine District during the year 1893.

Names and Location of Collieries.	Number of Persons Employed Inside.						Number of Persons Employed Outside.						
	Inside foreman or mine boss.	Miners.	Miners' laborers.	All company men.	Drivers and runners.	Door boys and helpers.	Total Inside.	Blacksmiths and capenters.	Engineers and firemen.	All company men.	Superintendent, bookkeepers and clerks.	Total outside.	Grand totals—inside and outside.
Appalo, Fayette county.	1	60	4	1	5	..	71	1	..	5	1	10	18
Albany, Fayette county.	1	140	21	9	7	..	178	..	..	..	9	14	192
Amity, Allegheny county.	1	189	16	3	17	2	228	..	..	12	2	16	244
Alleghippa, Allegheny county.	1	128	13	4	8	2	156	..	..	10	2	23	179
Aene, Washington county.	1	100	..	1	6	1	109	1	..	6	9	18	118
Allen, Washington county.	1	90	..	..	..	..	98	1	..	..	..	9	107
Anderson, Washington county.	1	125	15	2	7	..	151	3	..	7	2	14	165
Abe Hays, Washington county.	1	155	..	..	7	1	165	..	..	3	1	4	169
Blyth, Washington county.	1	160	4	2	6	2	175	..	..	3	2	4	178
Black Diamond, Washington county.	1	120	5	15	8	2	151	2	1	16	9	23	173
Beaumont, Washington county.	1	150	..	..	8	..	163	1	3	6	3	16	179
Buffalo, Washington county.	1	36	1	4	3	..	45	1	..	2	..	7	52
Banner, Washington county.	1	60	3	9	5	2	80	2	1	10	2	15	95
Banola, Allegheny county.	1	140	10	3	7	2	163	1	1	6	1	11	174
Cincinnati, Washington county.	1	150	3	2	9	3	168	1	2	7	..	12	180
Cliff, Washington county.	1	110	1	6	5	2	125	1	1	12	..	14	139
Coal Bluff, Washington county.	1	90	5	7	5	..	118	1	..	15	1	18	126
Coal Centre, Washington county.	1	154	6	1	10	6	178	1	1	9	..	13	191
Coal Centre, Washington county.	1	175	6	4	8	2	196	1	..	5	3	13	211
Catsburgh, Washington county.	1	60	6	2	7	1	77	1	..	5	..	8	85
Clippert, Washington county.	1	36	2	2	2	..	41	1	1	4	2	10	49
Courtney, Washington county.	1	100	10	3	8	2	123	1	..	9	..	11	134
Callonia, Washington county.	1	180	15	3	8	3	180	1	2	5	5	10	190
Champion, Washington county.	1	60	6	3	3	..	70	1	1	1	1	8	78
Charleroi, Washington county.	1	210	5	4	6	2	228	1	1	9	1	12	240
Crescent, Washington county.	1	112	..	4	15	5	200	3	..	12	1	17	217
Camden, Allegheny county.	1	3	..	..	1	..	9	..	1	1	..	3	13
Chalfant, Fayette county.	1	7	..	..	1	1	9	..	1	2	..	3	12
Chammoni, Fayette county.	1	42	2	2	1	..	48	..	1	1	..	3	51

Climax, Fayette county, ...	1	120	2	1	7	2	133	1	2	133	11	144
Cedar Hill, Fayette county, ...	1	20	8	2	3	2	24	1	1	24	3	27
Cleveland, Fayette county, ...	1	144	8	2	9	2	166	1	1	166	9	175
Eclipse R. R., Washington county, ...	1	140	8	3	7	5	164	1	1	164	10	174
Kelpse River, Washington county, ...	1	200	..	15	10	5	217	1	1	217	16	233
Knob, Washington county, ...	1	140	..	15	10	5	217	1	1	217	16	233
Fayette City, Fayette county, ...	1	140	..	15	10	5	217	1	1	217	16	233
Fidelity, Washington county, ...	1	140	..	15	10	5	217	1	1	217	16	233
Fulton, Allegheny county, ...	1	140	..	15	10	5	217	1	1	217	16	233
Germania, Washington county, ...	1	140	..	15	10	5	217	1	1	217	16	233
Gastonsville, Washington county, ...	1	125	7	3	8	4	198	1	1	198	10	114
Hackett, Washington county, ...	1	177	5	3	4	2	158	1	1	158	4	113
Hilldale, Washington county, ...	1	150	..	1	1	1	118	1	1	118	6	163
Ivill, Washington county, ...	1	160	5	6	6	2	176	1	1	176	11	129
Knob, Washington county, ...	1	95	6	1	1	1	110	1	1	110	9	129
Jefferson, Allegheny county, ...	1	175	2	2	13	3	195	1	1	195	14	210
Little Redstone, Fayette county, ...	1	61	..	..	..	..	65	1	1	65	6	71
Little Alps, Fayette county, ...	1	123	13	2	9	..	148	1	1	148	13	161
Milesville, Allegheny county, ...	1	90	10	3	6	1	111	1	1	111	10	121
Manown, Allegheny county, ...	1	160	5	2	9	2	179	1	1	179	15	194
Monah, Allegheny county, ...	1	12	..	..	2	..	15	1	1	15	6	21
Nottingham, Washington county, ...	1	170	19	2	10	1	203	1	1	203	8	211
New Eagle, Washington county, ...	1	20	..	1	..	..	24	1	1	24	5	29
New Eagle, Westmoreland county, ...	1	100	4	..	6	..	111	1	1	111	6	117
Old Forge, Allegheny county, ...	1	135	8	2	3	2	165	1	1	165	18	213
Old Forge, Westmoreland county, ...	1	135	8	2	3	2	165	1	1	165	18	213
Rock Run, Allegheny county, ...	1	146	10	2	9	1	182	1	1	182	7	101
Rock Run, Allegheny county, ...	1	147	12	2	9	4	174	1	1	174	13	175
Snowdon, Allegheny county, ...	1	147	12	2	9	4	174	1	1	174	13	175
Stonesburg, Allegheny county, ...	1	94	8	3	6	1	122	1	1	122	15	189
Stony Hill, Fayette county, ...	1	133	17	2	8	2	115	1	1	115	10	193
Snow Hill, Fayette county, ...	1	21	1	..	6	2	25	1	1	25	10	173
Stockdale, Washington county, ...	1	110	6	2	6	..	125	1	1	125	6	137
Shippler, Westmoreland county, ...	1	62	4	7	6	..	82	1	1	82	13	183
Tremont, Fayette county, ...	1	146	2	11	8	2	170	1	1	170	9	188
Umpire, Fayette county, ...	1	240	..	25	6	3	252	1	1	252	3	133
Vigilant, Washington county, ...	1	45	15	1	7	3	93	1	1	93	4	105
Vesta No. 1, Washington county, ...	1	75	15	4	6	1	104	1	1	104	15	119
Vesta No. 2, Washington county, ...	1	75	15	4	6	1	104	1	1	104	15	119
Vesta No. 3, Washington county, ...	1	350	20	1	18	2	392	1	1	392	2	99
Walton's Upper Mine, Washington county, ...	1	..	..	..	..	..	..	1	1	..	18	410
Walton's Lower Mine, Washington county, ...	1	145	5	..	7	1	159	1	1	159	10	169
Watson, Allegheny county, ...	1	140	6	2	7	1	157	1	1	157	9	166
Washington, Fayette county, ...	1	..	..	..	..	..	..	1	1	..	..	..

TABLE NO. 4.—*List of fatal accidents which occurred in and about the mines of the First Bituminous Mine District for the year ending December 31, 1893.*

Date of accident.	Name of Person.	Occupation.	Age.	Widow.	No. of orphans.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 9,	Peter Laurence,	Miner,	46	W.	2	Charleroi,	Washington,	Fatally injured by a fall of coal; lived about four hours after.
17,	Robert A. Torp,	do.	24	M.	1	Old Eagle,	Allegheny,	Instantly killed by a fall of slate.
30,	John Montzer,	do.	23	S.	1	Nottingham,	Washington,	Fatally injured by a fall of slate; died some seven hours afterwards.
Feb. 10,	William Ginth,	do.	..	M.	3	Fidelity,	do.	Fatally injured by a fall of slate; died February 14.
24,	Matthew Acton,	do.	..	S.	..	Ivill,	do.	Fatally injured by being run over by a dilly trip; died March 5.
Mar. 18,	Thomas Curtin,	do.	..	..	..	Eclipse R. R.,	do.	Instantly killed by a fall of slate.
April 5,	Thomas Miller,	do.	70	M.	3	Catsburgh,	do.	Fatally injured by a fall of coal; died April 25.
15,	James Milburn,	do.	..	M.	2	Champion,	do.	Instantly killed by a fall of coal and slate.
19,	Del Butler,	do.	..	S.	..	do.	do.	..
24,	John Ingram,	do.	..	M.	8	Albany,	Fayette,	Instantly killed by a fall of slate.
May 24,	Nicholas Fowler,	do.	24	M.	..	Cleveland,	do.	Fatally injured by a fall of slate; lived about an hour.
June 4,	Charles O'Leary,	do.	32	M.	4	Clintax,	do.	Instantly killed by a fall of slate.
June 6,	William Smith,	do.	32	M.	3	Clippert,	Washington,	Fatally injured by a fall of slate; died in about ten days.
9,	Sammel Rible,	do.	..	M.	4	Umpire,	Fayette,	Instantly killed by a fall of slate.
10,	Walter Ness,	do.	13	..	..	Catsburgh,	Washington,	Instantly injured by being caught by dilly trip.
12,	Frank Trapass,	do.	37	M.	1	Old Eagle,	Allegheny,	Fatally injured by being caught between ear and coal rib; died on the 14th.
13,	Joseph Scaller,	do.	45	S.	..	Buffalo,	Washington,	Instantly killed by a fall of slate.
July 8,	Joseph Suter,	do.	30	M.	2	Stony Hill,	Fayette,	Killed by a fall of slate.
31,	Christian Kerner,	do.	43	M.	9	Manown,	Allegheny,	Instantly killed by a fall of slate.
Oct. 13,	Samuel Tomlinson,	do.	..	M.	4	do.	do.	Instantly killed by a fall of coal and slate.
24,	Frederick Matzender,	do.	27	S.	..	Restrauer,	Westmoreland,	Instantly killed by a fall of coal and slate.
Nov. 28,	Louis Whaus,	do.	55	M.	3	Acme,	Washington,	Instantly killed by a fall of slate.
Dec. 7,	John Losser,	do.	..	S.	..	Crescent,	do.	Fatally injured by cars.
8,	George Bromley,	do.	..	M.	..	Coal Centre,	do.	Fatally injured by a fall of slate; died January 6, 1894.
14,	Michael Polock,	do.	..	M.	..	Acme,	do.	Fatally injured by a fall of slate; died December 26th.

TABLE NO. 5—List of non-fatal accidents which occurred in and about the mines of the First Bituminous Mine District, for the year ending December 31, 1893.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	No. of children.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 10.	Henry Brinket,	Miner,	45	Jan.	..	Catsburgh,	Washington,	Foot smashed by a fall of coal.
8,	Peter Crouse,	do.	..	..	..	Ella,	Westmoreland,	Knee injured by being struck by a post.
20,	C. W. Mason,	do.	..	..	..	Cincinnati,	Washington,	Injured by being struck by a post.
20,	James Newman,	Roadsman,	..	..	..	Black Diamond,	do.	Cut on knee by a hatchet while splitting a "cap."
21,	Samuel Snow,	Driver,	26	S.	..	Charleroi,	do.	Collar bone broken by car.
21,	Victor Thladushy,	Miner,	..	..	..	Cleveland,	Fayette,	Injured by being struck by a rail.
21,	Toney Fratzie,	do.	..	..	..	do.	do.	Injured on face by falling slate.
Feb. 2,	Henry Tonkr,	do.	..	..	..	Eclipse R. R.,	Washington,	Leg broken by a fall of slate.
13,	William Tempest,	do.	..	..	..	Manown,	Allegheny,	Injured by a post and a fall of slate.
16,	William Irvine,	do.	..	..	..	Cincinnati,	Washington,	Injured by a post and a fall of slate.
28,	Monachini Decendo,	do.	14	M.	..	Banner,	do.	Foot bruised by a fall of slate.
30,	John Robinson,	Machine-man,	22	..	..	Ella,	Allegheny,	Back injured by a fall of roof coal.
Mar. 13,	Stephen Vango,	Miner,	..	..	..	Washington,	Washington,	Right arm and right leg broken by a fall of slate.
31,	Jacob Fish,	do.	31	..	..	Ella,	Westmoreland,	Two ribs broken by a fall of slate.
Apr. 5,	Patrick Derton,	do.	14	..	..	Coal Bluff,	Washington,	Seriously injured by a fall of slate.
20,	George Becker,	do.	..	..	..	Old Eagle,	Allegheny,	Seriously injured by a fall of slate.
26,	Henry Becker,	do.	..	..	..	Stonesburgh,	do.	Leg broken by a fall of slate.
28,	Wilbert Layton,	do.	14	..	..	Little Redstone,	Fayette,	Seriously injured by being caught between car and coal pillar.
May 1,	— Johns,	do.	..	..	..	Catsburgh,	Washington,	Injured by a fall of coal and slate.
1,	— Davis,	do.	..	..	..	do.	do.	Injured by a fall of slate.
8,	Thomas Edwards,	do.	..	..	..	Tremont,	Fayette,	Leg mashed by a fall of slate; necessitating amputation.
9,	David Martin,	do.	..	..	..	Vigilant,	Washington,	Compound fracture of the left leg by a fall of slate.
11,	Thomas S. Briggs,	Operator	53	M.	..	Washington,	Fayette,	Left arm broken by being struck by dilly line.
13,	Henry North,	Miner,	28	M.	..	Rock Run,	Allegheny,	Back seriously injured by falling slate.
15,	Louis Valli,	do.	..	..	..	Walton Upper,	do.	Injured by a fall of coal and slate.
24,	Robert Dewor,	do.	..	..	..	Beaumont,	Washington,	Injured by a fall of slate.
ne 3,	Colphia Charbir,	do.	22	S.	..	Buffalo,	do.	Left leg fractured by a fall of slate.
5,	William Roy,	Driver,	..	..	..	Eclipse River,	do.	Leg broken while spragging a car.
6,	Emedia Falorshier,	Miner,	..	..	..	Milesville,	Allegheny,	Leg broken by an explosion of fire damp.
6,	Toney Falorshier,	do.	..	..	..	Shaffer,	do.	Burnt by an explosion of fire damp.
11,	Alexander Boyd,	do.	40	S.	..	Coal Bluff,	Westmoreland,	Injured by a fall of slate.
13,	James Cartwright,	do.	56	M.	..	do.	Washington,	Injured by a fall of slate.
18,	John Lager,	do.	39	M.	..	Little Redstone,	Fayette,	Ankle bruised by a car running on it.
11,	John Bunner,	Pay hand	..	..	..	do.	do.	Injured by a fall of slate.
11,	Thomas Degarnier,	Miner,	..	..	..	New Eagle,	Washington,	Injured by a fall of slate.

TABLE No. 5—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	No. of children.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
June 16, 19,	Thomas Cocain, Michael Dorsick,	Driver, Miner,	45 33	M. ..	.. ..	Little Redstone, Acme,	Fayette, Washington,	Toes bruised by a car running on them. Leg crushed below the knee by a fall of slate; necessitating amputation.
20	Daniel Peirce,	..	..	..	..	Old Eagle,	Allegheny,	Seriously injured by being caught between locomotive and coal pillar.
27, 30,	Michael Dooley, Michael Peterson,	Miner, Driver,	27 ..	M. ..	..	Vesta No. 1, Gastonville,	Washington, do.	Seriously injured by a fall of slate. Leg broken and otherwise injured by car running on him.
July 8, Aug. 11, Sept. 11, Sept. 20,	Palman Pascal, Reese M. Reese, George Myford, T. F. Montgomery,	Miner, do. Driver, Miner,	.. 44 .. ..	.. .. .. ..	..	Milesville, Bedipse R. R., do. Vigilant,	Allegheny, Washington, do. do.	Seriously injured by being caught by dilly trip. Leg broken by a fall of slate, necessitating amputation. A finger crushed by a fall of slate. Injured from the effects of a shot not definitely known how.
21, 21, Oct. 4, 6, 16, 30,	D. D. King, Mathew Baker, Alexander Leach, Joseph Michael, Thornton Abbott, Dominigo Horram,	do. do. Driver, Miner, Driver, Miner,	23 .. 19 22 .. 36 23	M. .. S. S. M. S.	..	Crescent, do. Courtney, Blyth, Little Redstone, Manown,	do. do. do. do. Fayette, Allegheny,	Injured by a fall of coal. Injured by a fall of slate. Seriously injured by a car running on him. Seriously hurt by a fall of slate. Leg fractured by a fall of coal. Compound fracture of the leg by a fall of coal and slate.
Nov. 11, 15,	John Hall,	Driver, Miner,	57	M.	..	Ella, Little Redstone,	Westmoreland, Fayette,	Small bone of leg broken by being run on by a truck. Small bone of leg broken and head injured by a fall of slate.
Dec. 2, 12, 13, 26, 23,	Claude Gozite, John Woose, Peter Starkey, George Seigman, Andrew Yuhala,	do. do. do. Day hand, Miner,	20 23 42	S. S. M.	..	Charleroi, Chinax, do. Little Redstone, Washington,	Washington, Fayette, do. do. do.	Slightly injured by a fall of slate. Leg fractured by a fall of slate. Injured on foot by a post falling on it. Foot injured by being caught in rope used to haul lumber from mines. Collar bone broken and otherwise injured by a fall of slate.

SECOND BITUMINOUS DISTRICT.

(ALLEGHENY, INDIANA AND WESTMORELAND COUNTIES.)

Hon. Thomas J. Stewart, Secretary of Internal Affairs:

Sir: In compliance with the requirements of section 11 of article 10 of the Act of Assembly, approved May 15, A. D. 1893, I have the honor of submitting my annual report as Inspector of Mines for the Second Bituminous district for the year ending December 31, 1893.

Since the passage of the Act increasing the number of mine Inspectors, and re-districting the Bituminous coal field, the Second district comprises that part of Allegheny county lying east of the Allegheny river, and all the mines along the Allegheny river in Westmoreland county to the West Penn Junction, all the mines on both sides of the Pennsylvania railroad and adjacent thereto, from Pittsburgh to the Cambria county line. The mines on the Indiana branch to the town of Indiana. The mines on the Hempfield and Youghioghenny branches; also, all of the mines on the South West P. R. R. in Westmoreland county, except Hazlett, Mullin, Buckeye, Emma, Bessemer, Rising Sun, Westoverton, Enterprise, Donnelly, Mayfield and Union mines.

There are now in the district 72 mines; 64 of these have been operated during the year. Eight of these worked about half the year, and 4 only worked one-fourth the year, owing to the great depression in the coke trade.

The mines are still being improved, and there is a larger volume of air in circulation in them than there was last year, and all practical operators and mine officials fully realize the benefits they derive from complying with a good, common-sense law. As I predicted in my report for 1891, the law which the commission revised in that year and presented to the Legislature, and which was defeated in the Senate, would only slumber a short time I was sure of; we have now a good law, and it is to be hoped that all who come under its provisions will fully comply with its mandates, for by doing so, accidents of all kinds will be greatly reduced in number and a feeling of safety will prevail in and about the mines. I have already had to enter suit in court to compel compliance with the law. I don't want to be harsh, but wilful violation of the law will always be punished. This, I believe, will be best for all concerned.

On the 11th day of August, 1893, Frank Tarasicowiex, employed as a miner at the Westmoreland shaft, a mine belonging to the West-

moreland Gas Coal Company, broke open an iron gate and entered the said mine before the same had been examined by the fire bosses and reported safe by him.

I made an information against him for violating section 1 of article XXI of the Act, relating to Bituminous coal mines, providing for the safety of the persons employed therein, etc., approved May 15, 1893, and he was indicted at the August sessions of Westmoreland county, found guilty and sentenced by the Court on September 1, 1893, to pay the cost of prosecution, pay a fine of twenty dollars to the Commonwealth, for the use of the county, and be confined in the county jail for and during a period of thirty days. This is by no means the full penalty of the law, but if such a serious offence is committed again I will not guarantee that the judge will not impose the full penalty the next time. So be careful and comply with the law. Such a violation as this might cost two or three hundred men's lives.

The following is a table of the fatal and non-fatal accidents and their causes for the year:

	Fatal.	Non-Fatal.
By falling slate, ...	7	6
By falling coal, ...		4
By mine wagons, ...		12
By fall of horse-back, ...	2	2
Between rail and joist, ...	1	
By being run over on the dilly road, ...	1	
By roof coal, ...	3	1
By cage, ...		1
By being kicked by a mule, ...		1
By timber, ...		1
Total, ...	14	28
Widows by fatalities, ...		6
Orphans by fatalities, ...		15

After a very thorough investigation of these accidents, I found that eight of them were caused by carelessness. There were one or two instances where the victims had been told by their fellow-workmen a few minutes before they met their death, that they would get killed if they did not exercise more care. There seems to be no remedy against such reckless persons except to put them out of the mine.

The nationalities of the persons killed are as follows: Five were Americans, four Italians, two Bohemians, one Hungarian, one Pole and one German.

Falling slate, as usual, caused the largest number of deaths. There is no question but that many of those lives could have been saved if

the mine rules were strictly enforced, and if any person refused compliance with the rules he should be sent out of the mine.

Roof falls come next. Much care should be exercised with the roof. It should be well posted. Sometimes slips in the roof are hard to discover; this being the case, the miner should frequently sound the roof with some heavy tool, at the same time lay his hand against the roof, in this way, if it is loose or insecure, slight vibrations will be easily felt. Too much care cannot be exercised in this way to secure safety, and the mine foreman should enforce these suggestions.

Horse-backs comes next. These are large slips or cutters running up into the roof in the shape of a horse back, and are very dangerous. Sometimes tons of slate and rock-falls come down without a moments warning. The same suggestions are applicable to horse-backs as to roof falls, but the miner should, in addition to sounding, be very careful in looking for dislocations, and other defects in the roof.

Mine wagons have been the cause of twelve of the non-fatal accidents. This is caused by reckless driving and persons jumping on the moving trips. It seems to be a hard task to stop persons from jumping on loaded wagons when coming out of the mines. The remedy for this difficulty is to punish every person caught violating the rules.

There has been no accident from explosive gas, although one-third of the mines are generating such gases. Twelve of these mines are lighted by the improved safety lamp, and no naked lights are permitted to be used.

The following statistics are a summary of accurate reports from all the mines, as set out in the tables:

Mines in the district, ...	72
Mines in the district operated, ...	64
Mines opened during the year, ...	2
Mines abandoned during the year, ...	1

Number of persons employed in the mines, ...	8,495
Number of persons employed outside, ...	2,599

Total number of persons employed, ...	10,994
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Tons of coal mined, of 2,000 pounds each, ...	6,635,308.251
Tone of coal shipped, of 2,000 pounds each, ...	4,292,027.742
Tons of coke manufactured, of 2,000 pounds each, ...	1,511,871.155
Tons of coal mined for each fatal accident, ...	473,950 $\frac{1}{2}$
Tone of coal mined to each non-fatal accident, ...	236,975.3
Number of days worked by all the mines, ...	12,583 $\frac{3}{4}$
Average number of days worked by fifty-two mines, ...	215

Number of employes for each fatal accident, ...	785.28
Number of employes for each non-fatal accident, ...	392.64
Number of horses and mules in use, ...	882
Number of coke ovens in the district, ...	7,206
Number of mine locomotives in use, ...	8
Number of kegs of powder reported as used in the mines, ...	241
Number of steam boilers in use, ...	233
Number of pumps in use, ...	97
Number of stationary engines used for hoisting and hauling coal, ...	63

From the foregoing statistics the reader will be able to see that there is a total loss in the district, as it stands now, of 1,271,122 tons as compared with last year. The greatest loss is in the coking part of the district, which amounts to 1,040,543 tons. The coke production suffers a loss also of 784,917 tons. The eleven mines that were put into my district from the Sixth district show a loss of 215,763 tons, and the six mines that was put into the district from the Third district show a loss of 60,004 tons from last year.

The other part of the district in the gas coal, shows an increased production of 45,188 tons. There have been no strikes or scarcity of cars during the year. I am glad to be able to report a decrease of eleven fatal accidents and thirteen non-fatal accidents, as compared with 1892. This is a very good showing, but it can be made still better if men will exercise a little more care, together with the enforcement of the new law and the rules. There are a very large number of men working in the mines now who know nothing about our laws, and have very little desire of becoming acquainted with them. They seem to be only sojourning with us for a short time until they accumulate sufficient money to go back to their native lands. These people know nothing about mine ventilation and a pure atmosphere, consequently they pollute the air at all hours of the day by blasting and burning a bad grade of oil. If they stop long among us they will have to comply with the law. I issued the following circular, calling attention to the new law.

The usual tables accompany the report.

WILLIAM JENKINS,
Inspector.

Irwin, Westmoreland county, Pa., February 16, 1894.

OFFICE OF THE MINE INSPECTOR OF THE SECOND BITUMINOUS DISTRICT.

Irwin, Pa., Nov. 25, 1893.

To the Operators, Mine Foremen, Fire Bosses and other interested parties in the Second Bituminous District:

Dear Sirs: I have refrained from issuing any circular letter calling your attention to the mining law of May 15, 1893, until the present time, for the reason that I was unable to supply you with the mine foreman and fire boss' daily report books and printed rules, as required by Articles 6 and 9; but now I have a supply of those books and printed rules on hand, to supply each mine with a copy. I deem it now my duty to call your attention to the Act and the necessity of the mines being managed and conducted in strict conformity with the requirements of the law. The changes that have been made by the new law are so numerous and radical that very little of the old law is left. I will not attempt to enumerate all the changes that have been made in the law in this circular letter; only some of the most important points. I will suggest that all interested parties procure a copy of the Act from the Colliery Engineer's office and make themselves familiar with its contents. I am glad to say that many of the operators and mine officials are willingly complying with the provisions of the law, and even going beyond its requirements; but there are always a few who need to be stirred up and frequently made acquainted with the law. Now, I wish to inform those parties that the old law has passed out of existence, and the new law has taken its place. That being the fact, I hope those few will take courage and fall in line with their brethren who know the benefits they derive from complying with a good law. I hope that our relationship in the future, as in the past, will be harmonious, and that all our efforts will be conducive to the health, safety and welfare of the men who are committed to our charge, which is the special purpose of the Act, and of our official capacity under the Act.

You will notice that in Article 1 it is provided that the elevations above mean tide of all entries, tunnels and of working places adjacent to boundary lines, at points not more than 300 feet apart, be shown on the mine map, and that the plan of ventilation be indicated by darts or arrows (it may be well to mark said arrow with pencil, and mark no greater number than are actually necessary, so that they may be easily erased in case the direction of the air currents should be changed); also, that a correct measurement of all working places be made when driven to their destination and before the pillars, or any part of the same is removed. Such measurements to be at once recorded in a book for the use of the engineer; likewise a copy of all

mine maps must be furnished to the Inspector of the district within six months from the passage of the Act. I will at any time call at the engineer's office for said copies of maps upon being notified that they are ready, and I would respectfully ask that such copies be furnished upon tracing muslin, which is much more durable and more convenient than sun print. In Article 4 you will notice that it requires that proper and prompt attention be given to the continuous operation of fans and furnaces used to produce the ventilation, and for the opening and closing of the doors used to direct the air currents in the mines. In Article 5 you will observe that there is a radical change from the old law in regard to the mode of examination of the mines by the fire bosses before the men enter to their work. Also, that a sufficient number of safety lamps be kept on hand at the mines ready for immediate use in case of an accident inside requiring their use. The duties of the mine foreman are clearly defined in Article 6 and rules Nos. 1 to 8 inclusive, and he will, of course, be held responsible for the strict fulfillment of such duties as the law requires of him. The legal duties of the superintendent are partly embodied in Article 7. Article 8, among other things, provides that a grade of oil which is not equal in quality to pure animal or cottonseed oil shall not be used in the mines for illuminating purpose. This is a very important matter, which directly affects the health of the employes and should receive prompt attention. In a number of our mines, the volume of air produced is sufficient of itself, yet it is so polluted with the poisonous fumes generated in all parts of the mines by the burning of the miserable grades of oil now in general use, as to be positively unfit for man or beast to breathe, and how to abolish this nuisance seems to be a difficult problem to solve, and I think the operators alone are the parties who have it in their power to apply the proper remedy. As far as I can learn, it is next to impossible for the men to obtain a good grade of oil if they desire to do so, for the reason that it is rarely to be got in the retail market, and I would suggest that it may be the best way out of the difficulty if a grade of oil equal to the legal standard were kept for sale at the mines; then the mine officials could, with some show of success, make a determined stand against the unnecessary vitiation of the air currents. It seems to me unreasonable to prosecute a person for using an unlawful grade of oil when he cannot conveniently procure a better article. Nevertheless this extreme measure will be resorted to if the present practice is continued. Rule 8 requires that a book or sheet be provided for the men to mark thereon their orders for timbers. I have marked on the back of this sheet a form which probably will be suitable for that purpose. I would also direct your special attention to article 18 which directs that certain articles be kept on hand at

the mines to be used in case of accident, and where ventilating fans are used, I will direct your attention to rule 68, where it says that recording instruments shall be provided for all fans.

Yours very respectfully,

WILLIAM JENKINS.

DESCRIPTION OF MINES AND MINING IMPROVEMENTS IN THE SECOND BITUMINOUS DISTRICT.

Arona Mine.—A second opening has been made in this mine. An air shaft 37 feet in depth has been sunk and a stack placed on top 26 feet in height, and a furnace has been built. Size of furnace 42 square feet fire bed, $7\frac{1}{2}$ feet from floor to comb of arch. Length of arch, 12 feet. The volume of air has been increased by building an overcast and judiciously splitting the air current of from 16,800 to 60,900 cubic feet per minute. The mine is in splendid condition both as regards ventilation and drainage. Mine foreman, William Nesbit.

Alexandria Mine.—This mine is in very fair condition, with an average of 29,260 cubic feet of air going out at the outlet per minute. This volume is in two currents, and is well distributed through the mine. The drainage is also in fair condition. Mine foreman, Daniel Campbell.

Claridge Mine.—This mine has been kept in a healthy condition during the year, with an average of 23,880 cubic feet of air going out at the outlet per minute. This volume is in two divisions and is well circulated through the mine. An additional inlet was made near the face. This gives the miners a fresh current of air. The mine drainage is also in good condition. Mine foreman, William Johnston.

Carbon Mine.—This mine has been kept in very good condition during the year, both as regards ventilation and drainage. The average quantity of air going in at the inlet is 40,438 cubic feet per minute. This volume is well distributed throughout the mine. A jumping shaft, 6 feet in diameter and 65 feet deep, was sunk at the mine during the year. Mine foreman, Joseph Weightman.

Duquesne Mine.—This mine is not always in a satisfactory condition, owing to its not getting the attention it should have. The air is not conducted to the face. There are 18,560 cubic feet going out at the outlet per minute. This quantity would be sufficient if it was properly distributed through the mine. The drainage is in very fair condition. Mine foreman, Mark James.

Denmark Mine.—The condition of this mine was unfavorable on my two first visits. The air was not properly conducted to the face of the workings, and the mine drainage was not very good. On my subsequent visits there was a decided improvement in the ventilation and drainage. The average quantity of air going out at the outlet

per minute was 49,985 cubic feet. A pumping shaft has been sunk, and a new pump put in, which is ample to keep the mine well drained. Mine foreman, Edmond Whiteman.

Derry Shaft.—This mine is in a healthful condition, with an average of 67,400 cubic feet of air going in at the inlet per minute. This volume is divided into five splits, with an average of 13,480 cubic feet in each. This gives a velocity of 300 feet per minute, which is ample to carry off the smoke and other gases as they are generated. One new overcast has been built during the year. The permanent stoppings are built double, with slate and rock gathered from the falls, and are well plastered with sediment from the drains, which makes them air tight, at a very small cost. The mine drainage is also in very good condition. Mine foreman, John Baker.

Greensburg Nos. 1 and 2 Mines.

Greensburg No. 1 Mine.—There was a 12-foot diameter fan erected at this mine during the year. There is double the quantity of air in the mine now since the fan took the place of the furnace. The average quantity of air going in at the inlet is 29,250 cubic feet per minute. This volume is well distributed. The drainage is also in good condition. Mine foreman, David Clark.

Greensburg No. 2 Mine.—This mine is in very fair condition, with an average of 9,467 cubic feet of air going in at the inlet per minute. This volume is fairly distributed through the mine. The drainage is also very good. Mine foreman, John McIntyre.

Gem Mine.—This is located at Bradenville, on the P. R. R., in Westmoreland county, Pa., and is operated by the Gem Coal and Coke Company. This new company has made some important improvements during the year. They have built an engine house and have erected an engine 12 inches by 16 inches to run a tail rope system of haulage. Length of haulage, 2,620 feet. The pit mouth has been re-timbered with eight-inch by twelve-inch timber, and it is a very neat piece of work. The drainage is good. The ventilation is produced at present by natural means, and is in fair condition, although there is not much of a current. There are 55 yards yet to be driven to the air shaft. When that is done and a furnace built, there will be good ventilation. This was the Daniel George property and was twice burned some years ago by incendiaries. Mr. George became discouraged and discontinued mining for some years and finally sold the works. William Keck is superintendent and George W. Wilkes is mine foreman.

Graceton Nos. 1 and 2 Mines.—On both my visits to these mines they were not running. This was owing to the depression in the coke trade. No. 2 mine is ventilated by an eight-foot fan. The fan was not

running at the time of my visits, but I measured 8,100 cubic feet of air in circulation per minute, produced by natural means. The mine is in good condition both as regards ventilation and drainage. Mine foreman, John Lochrie.

Hecla Nos. 1 and 2 Shafts.

No. 1 Shaft.—This mine has been kept in a healthful condition during the year, with an average of 48,913 cubic feet of air going in at the inlet per minute. This volume is well circulated through the mine. The drainage is also very good. Mine foreman, William Dean.

No. 2 Shaft.—This mine is in very good condition, with an average of 53,603 cubic feet of air going in at the inlet per minute. This volume is well divided and circulated throughout the mine. The drainage is also in very good condition. An engine house for the fan has been built of brick and iron, and two additional boilers are in course of construction to furnish more steam for the plant. Mine foreman, William Snedden.

Hempfield Mine.—This mine had not the attention it should have had during the year, owing, in a great measure, to the sickness and death of the mine foreman, Levi Ludwick. The average volume of air going in at the inlet is 37,568 cubic feet per minute. This quantity gives each person employed in the mine 358 cubic feet per minute, if properly distributed. Better results will be obtained next year, as a new mine foreman has taken charge. Mine foreman, Ralph Dawson.

Hampton Mine.—This mine is in a healthful condition, with an average of 24,900 cubic feet of air going out at the outlet per minute. This volume is fairly distributed through the mine and the drainage is in very fair condition. Mine foreman, Edgar Thompson.

Isabella Furnace Mine.—This mine is ventilated by exhaust steam. I have visited it once since it came into my district. The mine had stopped the day before I made my visit, and has been idle ever since, so I have not made an examination of it. I have been informed, however, by my predecessor that the exhaust steam is not sufficient to keep the mine in a healthful condition at all seasons of the year. Mine foreman, Morris J. Lewis.

Jamison Mine.—A small fan has been erected at this mine during the year for ventilating purposes. This fan gives a sufficient quantity of air at present, which is an average of 12,180 cubic feet per minute going out at the outlet. This volume is well distributed through the mine. The drainage is also in good condition. A coke crusher has been erected at the mine. Mine foreman, John A. Hart.

Lockport Mine.—This mine is in fair condition. I measured 8,000 cubic feet of air going out at the outlet per minute. This volume was

fairly distributed, and the mine drainage was very fair. Mine foreman, Peter McAlinden.

Latrobe Coke Works Mine.—This mine is in a healthful condition, with an average of 29,073 cubic feet of air going in at the inlet per minute. An overcast has been built and the volume of air split into two divisions, and is well circulated throughout the mine, and the mine drainage is all right. Mine foreman, Stephen Arkwright.

Madison Mine.—This mine is in fair condition, with an average of 33,120 cubic feet of air going out at the outlet per minute. This volume is fairly distributed through the mine, and the mine drainage is in fair condition. The dip headings have been driven 1,500 feet to open up another body of coal. An endless rope haulage has been put in, an air and pumping shaft has been sunk, and a fan will be erected soon to take the place of the two furnaces which are now in use. Mine foreman, William H. Howarth.

Loyalhanna Shaft.—On my first visit to this mine, I found the ventilation very defective on the west side of the mine. Lights would hardly burn on account of carbonic acid gas. I ordered a change in the ventilation at once, which was complied with. An overcast and sixty-seven stoppings had to be built to make this change. Now the mine is in very fair condition, with an average of 29,613 cubic feet of air going in at the inlets per minute. This volume is in two divisions, and is well circulated through the mine. The mine drainage is also in very fair condition. There was a very heavy squeeze came across the hauling road so that it was nearly lost. It was cleaned up again and retimbered and made safe. Mine foreman, Alexander Park.

Pandora Shaft.—This mine is in very good condition, both as regards ventilation and drainage. I measured 36,000 cubic feet of air going in at the inlet per minute. Mine foreman, John C. Menoher.

Millwood Shaft.—This mine is in fair condition, with an average of 18,100 cubic feet of air passing at the outlet per minute. This volume is fairly distributed throughout the mine. The drainage is also in good condition. Mine foreman, Thomas Thomas.

M. Saxman Mine.—This mine is ventilated by natural means. This mode of ventilation is not always reliable, no matter what the advantages are, and at the time of the year when the ventilation is needed the worst, there is none. The average quantity of air passing at the outlet, is 10,310 cubic feet per minute. The drainage is good. There is a good chance here to erect a fan, as they use steam for hoisting, and it will cost but a small trifle to run the fan, as the hoisting engineer can attend to it. Mine foreman, John C. Dovey.

Maher Nos. 1 and 2 Mines.—No. 1 mine is ventilated by natural means and both openings are nearly on the same level. So that there was no perceptible current of air in circulation where the men were

at work. The drainage was also satisfactory. No. 2 mine is a new opening located on the Indiana branch, P. R. R., about a mile and a half from Blairsville in Indiana county, Pa., and is operated by the Maher Coal and Coke Company. An air shaft has been sunk in this mine and a furnace will be built as soon as it is needed. I measured 9,660 cubic feet of air going in at the inlet per minute. The mine is well drained and ventilated. William Beveridge is foreman of both these mines.

Calumet Shaft.—This mine has been kept in very good condition during the year, with an average of 43,875 cubic feet of air going in at the inlet per minute. This volume is split into several divisions and well circulated through the mine. The drainage is also in very fair condition. An electrical plant has been erected at the mine for the purpose of lighting the shaft bottom, pump house and the outside buildings at the top of the shaft. This is a great improvement over the old system of lighting, being much safer. Mine foreman, John Nicholson.

H. C. Frick Coke Company's Mines.

Mammoth Shaft and Slope.—These mines have been kept in first class condition during the year, with an average of 61,118 cubic feet of air passing at the inlet per minute. This volume is split into several divisions and is well circulated throughout the mine. The drainage is also well looked after. The air shaft has been enlarged from 68 feet to 103 feet area, and re-timbered from top to bottom. A bore-hole for pumping purposes has been put down, and a new pump put in the mine for drainage. Mine foreman, James Eaton.

Monastery Slope.—This is in very good condition, with an average of 47,360 cubic feet of air going out at the outlet per minute. This volume is separated into three divisions and is well circulated through the working places. The drainage is also in very fair condition. Mine foreman, John W. Patterson.

Standard No. 2 Shaft.—This mine has been kept in a safe and healthful condition during the year, with an average of 119,173 cubic feet of air passing at the inlet per minute. This volume is in several divisions, and is well circulated throughout the mine. An additional airway was made which increased the quantity of air and on my last visit I measured 158,600 cubic feet passing at the inlet per minute. The drainage is also in very good condition. An additional haulage road 1,200 feet long was made into the dip workings of the mine, and the coal will be hauled out by the same engine that hauls the coal from the other part of the mine. Mine foreman, Robert Hay.

The slope has been idle all the year.

Saint Claire Mine.—This mine is in very fair condition. The ventilation is produced by a furnace with the assistance of a steam boiler

in the mine. The average quantity of air going out at the outlet per minute is 20,670 cubic feet. This volume is fairly distributed throughout the mine. The drainage is also in very good condition. Mine foreman, James Wardley.

Mitchell Mine.—This mine has to depend on the natural law for air, notwithstanding that I found the mine fairly ventilated. There is a great difference in the elevation between the inlet and outlet and this is what causes a current of air to move. On my first visit I measured 7,140 cubic feet, and on my second visit I measured 15,380 cubic feet of air passing at the outlet per minute. The distribution of this volume was very fair and the drainage was very good. Mine foreman, Milton Peddicord.

Penn Gas Coal Company Mines.

Penn Gas No. 1 Shaft.—On my first visit, February 14, I measured only 22,500 cubic feet of air in circulation per minute, with a water gauge of 2.2 inches. This quantity was not sufficient to keep the mine in a healthful condition. So we determined on a change in the mode of ventilation, and we got two-thirds more air with a water gauge of 1.2 inches, with the fan running five revolutions slower. The air is now brought in at the head of the workings and there are three return airways in place of one, and the air has not more than half the distance to travel and we have a fresh current of air at the head of each pair of headings. The average volume of air in circulation per minute since the change was made is 72,523 cubic feet. The mine is now in very good condition, both as regards ventilation and drainage. Mine foreman, John Bolam.

Penn Gas No. 2 Shaft.—This mine has been kept in very fair condition during the year, with an average of 43,120 cubic feet of air passing at the outlet per minute. This volume is fairly distributed through the mine and the mine drainage is very good. Mine foreman, William Jamison.

Penn Gas No. 4.—The average quantity of air passing at the outlet per minute is 35,270 cubic feet. On my last two visits, the distribution was not as good as it should have been. The drainage is in fair condition. Mine foreman, John Giles.

Penn Gas Coal Run Mine.—This mine is in very fair condition, with an average of 23,030 cubic feet of air going out at the outlet per minute. This volume is fairly distributed through the mine. The drainage is also in fair condition. Mine foreman, William Rodgers.

Pleasant Valley Mine.—This mine worked 177 days the last year, employing 14 miners driving headings. The tippie was completed and six cars of coal loaded. The mine is in good condition. Mine foreman, Joseph H. Powell.

Hostetter Mines.

Lippencott Mine.—This mine has been kept in a very healthful condition during the year, with an average of 48,533 cubic feet of air passing at the inlet per minute. This volume is divided into several currents and is well circulated through the mine. The mine drainage is also in good condition. Mine foreman, George Eustis.

Whitney Mine.—This mine is in very good condition, with an average of 49,423 cubic feet of air passing at the inlet per minute. This volume is divided into several currents and well circulated through the mine. The drainage is also in very good condition. The outside improvements are a new boiler house and two boilers 5 feet by 16 feet. Mine foreman, Joseph C. Knapper.

New York and Cleveland Gas Coal Company Mines.

Sandy Creek Mine.—This mine is in very good condition, with an average of 29,660 cubic feet of air passing at the outlet per minute. There are several inlets of air into the mine and the air is distributed very well. The drainage is very well kept up. A furnace has been built to ventilate the locomotive road. Size of furnace 42 square feet of fire bed. Mine foreman, Joseph Corbett.

Oak Hill No. 4 Mine.—This mine has been kept in very good and healthful condition during the year, with an average of 42,513 cubic feet of air going out at the outlet per minute. This volume is well circulated through the mine, and the mine drainage is in good condition. A wash house, stretchers, blankets and bandages have been provided at the mine for use in cases of accidents. Mine foreman, William P. Owens.

Plum Creek Mine.—This mine is in very good condition, with an average of 31,054 cubic feet of air passing at the outlet per minute. This volume is well divided and circulated through the mine. The drainage is also very good. A furnace has been built to ventilate the tunnel through which the locomotive runs. Size of furnace 42 square feet fire bed. This gives ample ventilation to the locomotive road. Mine foreman, William W. Carter.

Ocean Mine.—On my first, second and third visits to this mine, I found the ventilation and drainage rather defective. There was an average of 4,000 cubic feet passing at the outlet per minute, but it was not conducted to the face of the workings. An air shaft was sunk, and on my last visit I measured 5,900 cubic feet per minute in circulation, well conducted to the places where the miners were at work. Mine foreman, Gottlieb Vogele.

Penn Manor Shaft.—This mine has been kept in a very fair and healthful condition during the year, with an average of 27,160 cubic

feet of air passing at the inlet per minute. This volume is in two divisions and is well circulated through the working places. The drainage is also well looked after. Mine foreman, Samuel Ferguson.

Weinman Mine.—This is a small mine furnishing custom coal, and employing 16 persons; it only runs in the busy season of the year during cold weather. The mine is ventilated by a small furnace, but on my last visit I found no fire in the furnace. One of the miners is deputized to look after the furnace in the morning but he nearly always forgets it, and the fire is allowed to go out. The average volume of air in circulation per minute is 5,066 cubic feet. The mine drainage is very good. Mine foreman, Jacob Wienman.

Spring Hill No. 2 Mine.—This mine has been kept in very good condition during the year, with an average of 31,885 cubic feet of air passing at the outlet per minute. This volume is in three divisions and is well circulated through the mine. The mine is also well drained. Mine foreman, William Morris.

Smith's Mine.—This mine depends on natural ventilation. So no air measurement could be taken on either of my visits where the miners were at work. The drainage was in good condition. Mine foreman, Roy Gerard.

S. H. Smith's Mine.—This mine depends on the natural forces for ventilation. There was an average of 13,385 cubic feet of air passing at the outlet per minute, but owing to there being no power to control this current, it was not properly circulated through the mine. The mine is well drained. Mine foreman, Daniel Craig.

Turner Mine.—This mine is ventilated by natural means. I measured an average of 5,100 cubic feet passing at the outlet per minute, but owing to there being no power to control the ventilation, it was very poorly distributed. The drainage is very fair. Mine foreman, J. G. Turner.

Lucesco Mine.—This mine is ventilated by the natural current, which is not very strong, but the mine was in very fair condition at the time of my visit. There were only eight persons employed in the mine, so there was no mine foreman in charge at the time of my visit.

United Coal and Coke Company's Mines.

Mutual No. 2 Mine.—On my visit to this mine, November 6, I found the ventilation very fair, and I measured 25,620 cubic feet of air passing at the outlet per minute. The drainage was good. Since my visit to the mine, one of the headings has been driven to daylight. This gives them a fresh current of air at the face of the entries, which puts the ventilation in first-class condition. A new tippie, screens and side tracks, for the purpose of separating the coal for shipment, have

been furnished. The ovens have been idle all the year. Mine foreman, William West.

Mutual No. 3 mine has been idle the whole year.

United No. 1 Shaft.—This mine worked only 76 days during the year. The mine is kept in very good condition with an average of 80,429 cubic feet of air passing at the inlet per minute. This volume is in several divisions and is well circulated around the working places and only showing four-tenth of an inch of water gauge. There is an increase in the quantity of air over last year of 17,416 cubic feet per minute, owing to there having been some alteration made in the air shaft. Mine foreman, William West.

United No. 2 Mine.—This mine worked only 79 days during the year. The mine is kept in a healthful condition with an average of 45,550 cubic feet of air passing at the inlet per minute, and this volume is well circulated throughout the mine. The drainage is also in good condition. A first motion haulage engine has been erected geared (4 to 1) to take the place of the old engine. A 14-inch bore-hole has been put down into the dip workings for the purpose of pumping the water out of the dip. A large air compressor and a large pump are being erected for the purpose of pumping the water out of the mine. Mine foreman, James Wardley.

Westmoreland Gas Coal Company's Mines.

Export Mine.—On my first visit to this mine the volume of air in circulation was not sufficient to supply the increased number of men employed in the mine. This necessitated the widening of the air-way to the fan and of splitting the air into two divisions. By so doing, double the quantity of air was produced. The mine is now in very good condition, with an average of 29,153 cubic feet of air passing at the outlet per minute. This volume is well circulated through the mine. The drainage is also in good condition. Mine foreman, George Carroll.

Larimer No. 4 Mine.—This mine has been kept in a very healthful condition during the year, with an average of 63,840 cubic feet of air passing at the inlet per minute. This volume is divided into several splits and is well circulated throughout the mine. The drainage is in good condition. We have some trouble in consequence of the miners burning bad oil, and blasting at all hours of the day, but we will have this stopped very soon I believe. Mine foreman, John Williams.

South Side Mine.—This mine is in very good condition, and is ventilated by the return air from Larimer No. 4 mine.

Westmoreland Shaft.—This mine has been kept in very good condition during the year, with an average of 74,155 cubic feet of air pass-

ing at the outlet per minute. This volume is well distributed throughout the mine. The drainage is very good. At times there is considerable fire-damp given off from the strata when the rock falls in, so that they have to use the safety lamp in drawing ribs. Mine foreman, James Thompson.

The South West Connellsville Coal and Coke Company Mines.

No. 1 "A" Shaft.—This mine is in good condition, with an average of 88,760 cubic feet of air passing at the inlet per minute. This volume is well divided and circulated throughout the mine. The drainage is also very good. An electrical plant has been erected at the mine, which lights up the shaft bottom, engine house and pump house, and all the outside buildings. Mine foreman, John Duncan.

No. 1 "B" Shaft.—This mine is in a healthful condition, with an average of 106,400 cubic feet of air passing at the inlet per minute. This volume is divided and is well conducted throughout the mine, which is also well drained. Mine foreman, John Whitfield.

Alice No. 2 Mine.—This mine has been kept in good condition during the year, with an average of 82,500 cubic feet of air passing at the inlet per minute. This volume is well distributed and circulated throughout the mine. The drainage is also in good condition. Mine foreman, Hugh Ross.

No. 3 Shaft.—This mine is always kept in very good condition, with an average of 42,210 cubic feet of air passing at the inlet per minute. This volume is well circulated through the working places. The drainage is also in good order. Mine foreman, Robert Hair.

No. 4 Mine.—This mine is kept up to the requirements of the law, with an average of 42,210 cubic feet of air passing at the inlet per minute. This volume is in three splits and is well circulated throughout the mine. The drainage is also in good condition. Mine foreman, Robert Morris.

TABLE No. 1.—Showing Location, &c., of Collieries in the Second Bituminous Mine District.

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Postoffice Address.
Arona, ...	Arona Gas Coal Company, ...	Westmoreland, ...	Lund Washington, ...	Darragh, Westmoreland county.
Arnold, ...	Alexandria Coal Company, ...	do, ...	Thomas Donohoe, ...	Greensburg, Westmoreland Co.
Claridge, ...	Claridge Gas Coal Company, ...	do, ...	J. Howard Patton, ...	do, ...
Carbon, ...	Carbon Coal Company, ...	do, ...	W. M. Singer, ...	do, ...
Calumet, ...	Calumet Coal Company, ...	do, ...	S. W. Hawkins, ...	Calumet, Westmoreland county.
Derry, ...	Derry Coal and Coke Company, ...	do, ...	E. F. Saxman, ...	Larrobe, Westmoreland county.
Denmark, ...	Manor Gas Coal Company, ...	do, ...	A. P. Cameron, ...	Claridge, Westmoreland county.
Duquesne, ...	Corey Coal Company, ...	Allegheny, ...	W. L. Dixon, ...	Brushton, Allegheny county.
Export, ...	Westmoreland Gas Coal Company, ...	Westmoreland, ...	A. N. Humphreys, ...	Irwin, Westmoreland county.
Frankstown, ...	Jacob Wehman, ...	Allegheny, ...	Robert Wehman, ...	Wilkinsburg, Allegheny county.
Greensburg No. 1, ...	Greensburg Coal Company, ...	Westmoreland, ...	A. W. Jones, ...	Greensburg, Westmoreland Co.
Greensburg No. 2, ...	do, ...	do, ...	do, ...	do, ...
Graceton No. 1 and 2, ...	McCreey Coal and Coke Company, ...	Indiana, ...	Harry McCreey, ...	Graceton, Indiana county.
Hedea, No. 1 shaft, ...	The Hedea Coal Company, ...	Westmoreland, ...	Thomas Laird, ...	South West, Westmoreland Co.
Hedea, No. 2 shaft, ...	do, ...	do, ...	do, ...	do, ...
Hempfield, ...	Hempfield Coal Company, ...	Allegheny, ...	A. W. Jones, ...	Greensburg, Westmoreland Co.
Hampton, ...	Hammond Coal Company, ...	Allegheny, ...	John S. Stewart, ...	Blacksburg, Allegheny county.
Isabella Furnace, ...	Isabella Furnace Company, ...	Westmoreland, ...	W. C. Gies, ...	Blacksburg, Indiana county.
Jamison, ...	Jamison Coal Company, ...	do, ...	Thomas S. Jamison, ...	Greensburg, Westmoreland Co.
Lucas, ...	do, ...	do, ...	do, ...	do, ...
Lippincott, ...	Hosstetter, Connellsville Coke Company, ...	do, ...	John T. Rush, ...	Whitney, Westmoreland county.
Larimer Nos. 3 and 4, ...	Westmoreland Gas Coal Company, ...	do, ...	A. N. Humphreys, ...	Irwin, Westmoreland county.
Loyalhanna, ...	Loyalhanna Coal and Coke Company, ...	do, ...	John C. Menohier, ...	Loyalhanna, Westmoreland Co.
Lockport, ...	Boltvar Coal and Coke Company, ...	do, ...	Peter McAlinden, ...	Lockport, Westmoreland county.
Larrobe Coal Works, ...	Larrobe Coal Company, ...	do, ...	D. W. Jones, ...	Larrobe, Westmoreland county.
Mutual Nos. 1 and 2, ...	United Coal and Coke Company, ...	do, ...	H. C. Burket, ...	United, Westmoreland county.
Mammoth Nos. 1 and 2, ...	H. C. Frick Coke Company, ...	do, ...	Charles B. Franks, ...	Mammoth, Westmoreland C.
Madison, ...	Madison Gas Coal Company, ...	do, ...	Thomas Donohoe, Jr., ...	Greensburg, Westmoreland Co.
Madison, ...	Indiana Coal Company, ...	Indiana, ...	Jacob Graf, ...	Blairsville, Indiana county.
Maheer, ...	Maheer Coal and Coke Company, ...	do, ...	Thomas Maheer, ...	do, ...
Monastery slope, ...	H. C. Frick Coke Company, ...	Westmoreland, ...	A. F. Downing, ...	Larrobe, Westmoreland county.
M. Saxman, ...	M. Saxman, Jr., Coal and Coke Company, ...	do, ...	Frank Kierman, ...	do, ...
Millwood shaft, ...	The Millwood Coal and Coke Company, ...	do, ...	E. B. Kimmell, ...	Millwood, Westmoreland county.
No. 1 "A" and "B" shafts, ...	South West Connellsville Coke Company, ...	do, ...	William S. Ramsay, ...	Mt. Pleasant, Westmoreland Co.
No. 2, ...	do, ...	do, ...	do, ...	do, ...
No. 3, ...	do, ...	do, ...	do, ...	do, ...
No. 4, ...	do, ...	do, ...	Robert Ramsay, Jr., ...	Tarr's, Westmoreland county.
Ocean, ...	Gottlieb Yocelle, ...	Allegheny, ...	do, ...	do, ...
Oakhill No. 4, ...	New York and Cleveland Gas Coal Company, ...	Allegheny, ...	Gottlieb Yocelle, ...	Wilkesburg, Allegheny county.
Oreum shaft, ...	Berwind White Coal Mining Company, ...	do, ...	T. B. DeArmit, ...	Turtle Creek, Allegheny county.
Plum Creek, ...	do, ...	Westmoreland, ...	F. J. Kimball, ...	Rilton P. O., Westmoreland Co.
Penn Gas No. 1 shaft, ...	New York and Cleveland Gas Coal Company, ...	Allegheny, ...	T. B. DeArmit, ...	Turtle Creek, Allegheny county.
Penn Gas No. 2 shaft, ...	Penn Gas Coal Company, ...	Westmoreland, ...	John F. Wolf, ...	Irwin, Westmoreland county.
Penn Gas No. 3 shaft, ...	do, ...	do, ...	do, ...	do, ...
Penn Gas No. 4 shaft, ...	do, ...	do, ...	do, ...	do, ...
Penn Gas Coal Run, ...	do, ...	do, ...	do, ...	do, ...
Penn Gas slope, ...	do, ...	do, ...	do, ...	do, ...
Penn Gas drift, ...	do, ...	do, ...	do, ...	do, ...

TABLE No. 1—Continued.

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Postoffice Address.
Pandora shaft, ...	Loyalhanna Coal and Coke Company, ...	Westmoreland,	John C. Menoher,	Loyalhanna, Westmoreland Co.
Penn Manor shaft, ...	F. L. Stephenson, ...	do.	Samuel Ferguson,	Hampton City, Westmoreland Co.
Pleasant Valley, ...	New York and Cleveland Gas Coal Company,	do.	E. W. Schellenberg,	1533 Stevenson, Pittsburg.
Spring Hill Nos. 1 and 2, ...	Spring Hill Gas Coal Company,	Allegheny,	E. W. Boyd,	Allegheny county.
Sandy Creek, ...	New York and Cleveland Gas Coal Company,	do.	William Fisher,	Twile Ash P. O. Allegheny Co.
Strickler, ...	J. A. Strickler Coke Company (Limited),	Westmoreland,	J. A. Strickler,	Wilkinsburg, Allegheny county.
Standard No. 1, ...	H. C. Frick Coke Company, ...	do.	Robert Ramsay,	Mt. Pleasant, Westmoreland Co.
Standard No. 2, ...	do.	do.	do.	do.
Standard slope, ...	do.	do.	do.	do.
South Slope, ...	Westmoreland Gas Coal Company, ...	do.	A. N. Humphreys,	Irwin, Westmoreland county.
Smith, ...	Robert Smith, ...	Indiana,	Robert Smith,	Blairsville, Indiana county.
St. Clair, ...	The Ligonier Coal Company, ...	Westmoreland,	Daniel Frazer,	Latrobe, Westmoreland county.
Union, ...	St. Clair Coal and Coke Company (Limited),	do.	M. A. Preston,	Blairsville, Westmoreland Co.
United No. 1 shaft, ...	J. M. Turner, ...	Indiana,	J. M. Turner,	Blairsville, Indiana county.
United No. 2, ...	United Coal and Coke Company, ...	Westmoreland,	H. C. Barker,	United, Westmoreland county.
Whitney, ...	do.	do.	F. A. Plotner,	Perece, Westmoreland county.
Westmoreland shaft, ...	Hosetetter, Connellsville Coke Company,	do.	J. T. Rush,	Whitney, Westmoreland county.
Weinman, ...	Westmoreland Gas Coal Company, ...	Allegheny,	A. N. Humphreys,	Irwin, Westmoreland county.
	Weinman, ...		Jacob Weinman,	Wilkinsburg, Allegheny county.

TABLE No. 2—Continued.

Names and Location of Collieries.	Total production in tons of coal.	Total production in tons of coke.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.	Number mine locomotives.	Number coke ovens.
Madison, Darragh, Westmoreland county, Pa., . . .	186,251.	60*	186,251.	276	286	..	8	..	2	25	..	208
Marysville slope, Jarrore, Westmoreland county, Pa., . . .	84,483	..	84,483	282	122	..	..	..	11	15	..	..
McIntosh shaft, Millwood, Westmoreland county, Pa., . . .	70,893	..	70,893	174	174	..	..	..	2	3	..	60
Milwood shaft, Millwood, Westmoreland county, Pa., . . .	68,417	20,535	42,069	152	152	..	..	130	6	9	..	..
Mitchell, Graceon, Indiana county, Pa., . . .	20,000	12,000	65,691	306	322	..	..	..	..	2	..	24
Maher, Blairsville, Indiana county, Pa., . . .	19,397	..	19,397	253	95	..	..	..	..	2	..	..
No. 1, "A," and "B," shafts, Mt. Pleasant, West. co., Pa., . . .	307,540	198,340	..	157	632	2	..	3	21	54	..	620
No. 2, Mt. Pleasant, Westmoreland county, Pa., . . .	111,903	73,535	..	133	245	..	..	..	1	28	..	251
No. 3, Tarr's, Westmoreland county, Pa., . . .	84,874	51,916	..	107	140	..	..	5	9	22	..	180
No. 4, Alverton, Westmoreland county, Pa., . . .	48,073	31,582	..	306	146	..	..	1	2	13	..	151
Ocean, Wilkensburg, Allegheny county, Pa., . . .	8,469	..	7,241	306	11	..	..	..	..	2	..	..
Oak Hill No. 4, Turtle Creek, Allegheny county, Pa., . . .	318,301	..	318,301	241½	392	1	..	..	2	19	..	..
Ocean Shaft, Millvale, Westmoreland county, Pa., . . .	229,343	..	229,343	250	281	..	..	..	1	22	1	..
Plum Creek, Negley, Allegheny county, Pa., . . .	221,455	..	214,153	210	333	2	..	..	8	25	..	..
Penn Gas No. 1 shaft, Irwin, Westmoreland county, Pa., . . .	194,585	..	178,764	204½	325	1	..	..	8	36	..	..
Penn Gas No. 2 shaft, Irwin, Westmoreland county, Pa., . . .	68,941	..	66,083	211½	88	..	..	..	5	..	..	..
Penn Gas Coal Run, Irwin, Westmoreland county, Pa., . . .	121,822	..	119,721	171½	224	1	..	..	2	20	..	..
Pleasant Valley, Harrison City, Westmoreland county, Pa., . . .	5,712	..	150	177	22	..	..	..	..	2	..	..
Pandora shaft, Loyallanna, Westmoreland county, Pa., . . .	94,798	30,358	75,100	1204	163	..	..	..	4	12	..	186
Penn Manor shaft, Manor, Westmoreland county, Pa., . . .	34,346, 1450*	..	34,346, 1450*	170	107	..	..	..	4	4	..	43
Spring Mills, and 2½ Wall's, Allegheny county, Pa., . . .	87,394, 1000*	..	87,394, 1000*	812	116	..	..	..	1	9	..	..
Strickler, South West, Westmoreland county, Pa., . . .	202,391, 500*	..	202,391, 500*	2694	278	1	..	..	1	19	1	..
Strickler, South West, Westmoreland county, Pa., . . .	32,168	..	32,168	35	76	..	..	..	1	3	..	..
Standard No. 1, Mt. Pleasant, Westmoreland county, Pa., . . .	363,139	242,093	..	264	671	2	..	..	16	46	5	905
Standard No. 2, Mt. Pleasant, Westmoreland county, Pa., . . .	..	..	..	..	..	..	..	..	..	..	..	..
Standard slope, Mt. Pleasant, Westmoreland county, Pa., . . .	11,951	..	11,951	150	24	1	..	..	1	3	..	..
South Side, Irwin, Westmoreland county, Pa., . . .	21,945	..	21,845	288	28	..	..	..	..	..	..	..
Smith, Blairsville, Indiana county, Pa., . . .	42,530	..	42,400	252	47	..	..	..	..	4	..	..
S. H. Smith, Latrobe, Westmoreland county, Pa., . . .	57,559	18,890	26,615	290	89	1	..	..	4	9	..	128
St. Clair, Bradenville, Westmoreland county, Pa., . . .	20,839	..	20,839	310	23	..	..	..	..	..	..	..
Turner, Blairsville, Indiana county, Pa., . . .	..	..	..	..	184	..	..	..	7	13	..	300
United No. 1 shaft, United, Westmoreland county, Pa., . . .	38,523	25,682	..	76	..	1	..	..	..	..	..	..

TABLE No. 3.—*Showing the number of employees at each colliery in the Second Bituminous Mine District, during the year 1893.*

Names and Location of Collieries.	Number of Persons Employed Inside.						Number of Persons Employed Outside.								
	Inside foreman or mine boss.	Miners.	Miners' boys.	All company men.	Drivers and runners.	Doorboys.	Total Inside.	Outside foremen.	Blacksmiths and carpenters.	Engineers and firemen.	Number of cokers and yard men employed.	All company men.	Superintendents, bookkeepers and clerks.	Total outside.	Grand totals—inside and outside.
Arona, Darragh, Westmoreland county.	1	78	2	6	5	3	91	2	2	1	36	7	2	12	103
Alexandria, Goff, Westmoreland county.	1	130	20	6	14	3	177	2	4	3	10	11	1	64	241
Claridge, Claridge, Westmoreland county.	1	140	4	4	10	3	162	1	1	3	63	9	1	81	241
Carbon, Greensburg, Westmoreland county.	1	130	5	3	11	3	160	1	1	3	62	7	1	82	241
Calumet, Calumet, Westmoreland county.	1	115	10	10	6	3	147	2	1	3	62	7	1	82	229
Derry shaft, Bradenville, Westmoreland county.	1	115	6	8	15	9	147	2	1	3	62	7	1	82	229
Denmark, Bridge, Westmoreland county.	1	128	22	4	16	8	289	1	1	4	11	2	1	17	304
Duquesne, Wilkesburg, Allegheny county.	1	300	5	24	12	4	346	1	2	1	26	11	1	47	379
Export, Export, Westmoreland county.	1	59	2	2	2	2	67	1	2	1	1	6	1	13	87
Greensburg No. 1, Greensburg, Westmoreland county.	1	20	1	2	2	2	24	1	1	2	56	3	1	3	27
Greensburg No. 2, Greensburg, Westmoreland county.	1	85	1	1	2	3	91	1	1	1	56	3	4	65	166
Graceton Nos. 1 and 2, Graceton, Indiana county.	1	81	2	13	15	10	122	2	5	6	56	9	3	81	203
Hecla No. 1 shaft, South West, Westmoreland county.	1	113	2	8	12	9	145	2	4	5	73	15	3	102	247
Hecla No. 2 shaft, Tranter, Westmoreland county.	1	180	5	3	13	3	165	1	2	3	6	10	2	13	181
Hempfield, Greensburg, Westmoreland county.	1	62	12	4	5	4	88	2	2	1	41	7	3	13	161
Hampton, Wilkesburg, Allegheny county.	1	105	4	12	16	3	140	2	2	3	41	14	2	64	204
Isabella Furnace Company, Coketon, Westmoreland county.	1	47	4	3	5	1	61	1	1	1	11	3	1	18	79
Jamison, Donohoe, Westmoreland county.	1	7	1	1	2	1	8	1	1	1	1	1	1	10	17
Lucisco, Lucisco, Westmoreland county.	1	65	3	4	5	2	80	1	2	4	40	6	2	55	135
Lippencott, Hostetter, Westmoreland county.	1	362	12	16	15	8	414	1	2	2	4	27	2	54	468
Larimer Nos. 3 and 4, Larimer, Westmoreland county.	1	13	1	1	1	1	17	1	1	1	1	1	1	24	41
Lockport, Lockport, Westmoreland county.	1	45	9	22	13	5	105	2	3	10	28	24	3	62	167
Loyahanna shaft, Loyahanna, Westmoreland county.	1	133	4	8	16	1	163	1	1	1	16	18	2	47	207
Laurie Coal Works, Laurio, Westmoreland county.	1	63	1	1	6	1	72	1	1	1	1	1	1	73	146
Mammoth Nos. 2 and 3, Mutual, Westmoreland county.	1	120	5	12	18	9	155	3	5	9	138	20	4	177	333
Mammoth Nos. 1 and 2, Mammoth, Westmoreland county.	1	227	10	10	16	6	262	2	2	3	14	14	2	24	486
Mammoth, Darragh, Westmoreland county.	1	84	1	1	16	3	104	2	1	3	4	3	1	18	192
Monastery slope, Laurio, Westmoreland county.	1	59	1	1	1	2	63	1	1	1	1	1	1	67	126
M. Saxman, Laurio, Westmoreland county.	1	59	1	1	1	2	63	1	1	1	1	1	1	67	126

Millwood shaft, Millwood, Westmoreland county, ...	1	100	2	3	10	2	118	3	3	3	5	1	12	130
Mitchell, Gracetown, Indiana county, ...	1	21	..	..	2	..	24	..	..	..	..	1	8	32
Maheer, Blairsville, Indiana county, ...	1	17	..	..	2	..	22	..	..	..	..	1	3	25
No. 1, "A", and "B" shafts, Mt. Pleasant, Westmoreland county, ...	2	100	5	37	32	8	370	16	16	..	202	31	262	632
No. 2, Mt. Pleasant, Westmoreland county, ...	1	286	..	10	14	4	129	1	3	3	90	16	245	245
No. 3, Tarr's, Westmoreland county, ...	1	77	3	9	11	3	101	1	2	5	54	12	176	180
No. 4, Alverton, Westmoreland county, ...	1	61	2	7	10	1	82	1	2	3	52	4	2	64
Ocean shaft, Millvale, Westmoreland county, ...	1	12	..	1	..	..	14	..	..	..	..	1	12	26
Oak Hill No. 4, Turtle Creek, Allegheny county, ...	1	300	38	3	21	6	369	1	2	3	..	14	3	392
Ocean, Wilkensburg, Allegheny county, ...	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Plum Creek, Negley, Allegheny county, ...	2	215	15	6	11	..	251	..	..	..	..	19	26	281
Penn Gas No. 1 shaft, Irwin, Westmoreland county, ...	1	232	..	20	24	4	302	1	3	..	..	19	90	333
Penn Gas No. 2 shaft, Irwin, Westmoreland county, ...	1	235	17	12	25	7	298	1	5	4	..	17	27	323
Penn Gas, Oak Run, Irwin, Westmoreland county, ...	1	167	..	4	5	2	79	1	3	..	..	..	9	88
Penn Gas Valley, Stricklen, Westmoreland county, ...	1	163	5	12	14	2	197	1	3	2	..	15	27	224
Pandora shaft, Harrison, Westmoreland county, ...	1	14	..	..	2	..	17	..	4	..	..	..	6	22
Pandora shaft, Loyalhanna, Westmoreland county, ...	1	127	4	15	6	1	154	1	1	3	..	..	1	163
Penn Manor shaft, Manor, Westmoreland county, ...	1	75	2	4	4	2	88	1	1	3	..	13	1	107
Strickler, South West, Westmoreland county, ...	1	60	..	1	5	1	68	..	1	2	..	4	1	76
Standard No. 2 shaft, Mt. Pleasant, Westmoreland county, ...	2	280	..	45	22	7	356	2	7	10	234	58	315	671
Standard slope, Mt. Pleasant, Westmoreland county, ...	..	..	..	..	..	..	..	..	..	..	..	..	..	..
South Side, Irwin, Westmoreland county, ...	1	20	..	..	3	..	24	..	..	..	..	..	..	24
Saint Clair, Bradenville, Westmoreland county, ...	1	48	2	2	6	2	61	1	1	3	14	7	28	89
S. H. Sni h, Latrobe, Westmoreland county, ...	1	38	4	..	3	..	46	..	..	..	..	1	1	47
Spring Hill No. 2, Wall's Allegheny county, ...	1	88	10	..	6	1	106	1	2	..	..	5	10	116
Sandy Creek, Sandy Creek, Allegheny county, ...	1	190	42	..	15	1	249	3	3	4	..	20	23	278
Smith's, Blairsville, Indiana county, ...	1	23	..	..	2	..	26	..	..	..	..	1	2	28
Turner, Blairsville, Indiana county, ...	1	21	..	..	2	..	24	..	..	..	..	..	1	25
United No. 1 shaft, United, Westmoreland county, ...	1	61	..	6	8	5	101	1	2	6	66	6	83	184
United No. 2, Ferree, Westmoreland county, ...	1	77	4	..	8	3	108	2	2	7	59	3	2	164
Westmoreland shaft, Biddle, Westmoreland county, ...	2	336	12	53	23	8	419	1	3	4	..	30	44	463
Whitney, Whitney, Westmoreland county, ...	1	106	..	7	8	2	122	1	3	4	60	10	80	202
Wetman, Wilkensburg, Westmoreland county, ...	1	12	2	..	1	..	16	..	..	..	..	..	1	17
Westmoreland car shops, Irwin, Westmoreland county, ...	..	..	..	..	..	..	..	..	..	..	..	..	38	38
Total, ...	65	6,890	314	441	€03	183	8,495	52	148	190	1,477	619	2,599	10,994

TABLE No. 4.—List of fatal accidents which occurred in and about the mines of the Second Bituminous Mine District, for the year ending December 31, 1893.

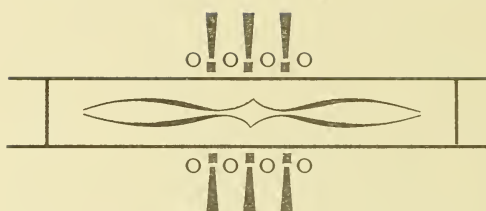
Date of accident.	Name of Person.	Occupation.	Age.	Widow.	Number of orphans.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Feb. 18,	Anton Furst, ...	Miner, ...	22	S.	..	Hampton, ...	Allegheny, ...	Was instantly killed by a fall of slate. It appeared that he was a very careless man and did not have a post set under the slate. A fifteen year old boy had been to his room a short time before he was killed and told him to post his slate or he would be killed. The coroner held an inquest and rendered a verdict of accidental death.
27,	Lewis Remmy, ...	Driver, ...	32	1	..	Hecla No. 2 shaft, ...	Westmoreland, ...	Was instantly killed by being caught between a rail and post. At the time of the accident he was carrying a rail on his shoulder to put on a wagon, and an empty wagon was running off the cage and struck the rail which caught him between rail and post and broke his neck.
Mar. 8,	Joseph Vielmo, ...	Miner, ...	27	S.	..	Denmark, ...	do.	Was fatally injured by being run over on the dilly road. He had no reason to be on the dilly road as there was a traveling road to come out by. The mine was then in a state of dislocyng orders and violating the rules of the mine, which forbids traveling on the dilly road.
29,	Caeser Pathgona, ...	do.	35	S.	..	Export, ...	do.	Was instantly killed by a fall of slate as he was loading his wagon. The mine foreman had been with him a short time before the accident, and had ordered his partner to post up the slate, but he did not heed the warning, so he was killed by being careless in not posting up the slate.
Apr. 22,	Dominic Genter, ...	do.	33	S.	..	Northumberland shaft, ...	do.	Was instantly killed by a fall of slate as he was loading a wagon. He had only been in the mine six weeks and did not know the dangers to be encountered in unning, so he lost his life by his lack of knowledge.
25,	Richard Leak, ...	Dillyrider, ...	20	S.	..	Denmark, ...	do.	Was instantly killed by a fall of roof coal as he was taking a trip of empty wagons down the dilly road. It seems that he had lost his light and the trip got away from him and ran into some posts, knocking them out, when tons of roof coal and slate fell and he was killed in the wagon. He had only been a day or so at the work.

May 8,	Samuel Goodwin, ...	Miner, ...	27	1	1	Oak Hill No. 4, ...	Allegheny, ...	Was instantly killed by a fall of slate as he was picking up a wedge. He had driven a wedge over the slate until it was loose, and then he stooped down under the loose slate to pick up the wedge when he was caught. It was certainly a careless action. The coroner held an inquest and rendered a verdict of accidental death.
June 8,	George Nyahay, ...	do.	30	1	2	Hecla No. 1 shaft, ...	Westmoreland, ...	Was instantly killed by a fall of horseback as he was drawing entry stumps back. His partner stated that they had the place well posted and that the horse-back fell between the posts, accidentally knocking some of them out.
22,	Arthur Face, ...	do.	20	S. . .	S. . .	Denmark, ...	do.	Who were working in the mine, that he was kneeling on the roof, and that he had neglected to post the roof, so this young man met his death through his own neglect.
Aug. 9,	Bade Bucan, ...	do.		S. . .	S. . .	Larimer, No. 4, ...	do.	Was fatally injured by a fall of slate, and died in an hour afterwards. He had neglected to post the slate although he had plenty of posts in his room. So he lost his life through his own carelessness.
31,	Mark Fulton, ...	Laborer, ...	45	1	5	Westmoreland Shaft, ...	do.	Was fatally injured by a fall of roof coal, as he was cleaning the road, and died in a few minutes afterwards. John Weigle was working near him, and stated that he had told Fulton to take all the loose coal down before commencing to clean up the road, and that he thought he had done so.
Sept. 26,	Mila Yacobovitz, ...	Miner, ...	26	S. . .	S. . .	Export, ...	do.	Was instantly killed by a fall of slate. At the time of the accident he was sitting down barring in when the slate fell on him. There was hardly room enough to set a post under the slate, but if he had made an effort he could have taken it out, and he would have been perfectly safe.
28,	Harry Beeva, ...	do.	30	S. . .	S. . .	Hempfield, ...	do.	Was fatally injured by a fall of horse back and died soon after the accident. He had his room well timbered, but if he had made a close examination of the slate he would have discovered its dangerous condition from the cutter that was running through it.
Nov. 22,	Albert Sisteck, ...	do.	56	1	2	Penn Gas No. 2 shaft, ...	do.	Was instantly killed by a fall of slate, as he was knocking coal down. The slate post was knocked out by the falling coal, and he did not take time to set it up again. So, it was evident that he lost his life through his own neglect.

TABLE NO. 5.—List of non-fatal accidents which occurred in and about the mines of the Second Bituminous Mine District for the year ended December 31, 1893.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 3, 14, 31, Feb. 23, March 14,	Frank John, William Hone, John Miller, William Tuholla, Joseph Chestnick,	Miner, Laborer, Miner, Driver, Miner,	23 18 33 32 32	S. S. S. S. M.	United No. 4 shaft, "B" No. 1 shaft, Madison, "B" No. 1 shaft, Calumet,	Westmoreland, do. do. do. do.	Fracture of the pelvis by a fall of slate. Arm broken by falling on top of cage. Leg broken by being caught by a fall of slate. Leg broken by being caught between wagons. Leg fractured between wagons as he was helping the driver to put a wagon on the track.
April 6, June 21,	Thomas Slack, William Norbaugh,	Driver, Miner,	40 19	M. S.	South Side, Penn shaft No. 1,	do. do.	Two ribs broken by being kicked by a mule. Was severely injured by jumping on a wagon against orders.
July 18, 20,	Joseph McClintock, Evan Thomas,	do. do.	14 33	M. M.	Sandy Creek, Westmoreland shaft,	Allegheny, Westmoreland,	Leg broken by jumping between the wagons. Arms crushed between cars at the tippie, necessitating amputation.
Aug. 1, 7, 14, 28,	Michael Krcemal, Vacontino Paretel, Malcom McLaughlin, Linyui Boggie,	do. do. do. do.	40 36 35 35	M. M. M. M.	Loyalhanna shaft, Denmark, Madison, Loyalhanna,	do. do. do. do.	Leg fractured by a fall of coal. Back severely injured by a fall of roof coal. Two fingers broken and a compound fracture of the tibia by a fall of slate.
Sept. 2, 21,	Slivio Zorzi, Damon Barney,	do. Driver,	16 20	boy S.	Export, Madison,	do. do.	Leg broken by a fall of coal. Leg severely injured by a fall of roof coal. Leg broken by a fall of coal; he did not have it properly braced. Leg dislocated by being caught between wagon and rib.
Oct. 2, 3, 4, 10, 16, 17, Nov. 11,	William Smith, John Morrison, Patrick Gannon, Henry Flagel, Henry Homer, Amzi Struble, John Dooley, John Burkey,	Miner, do. do. do. Driver, Miner, do.	20 49 18 42 44 44 44	S. M. S. M. M. S. M.	Greensburg No. 3, Export, Penn Gas No. 4, Greensburg No. 1, Westmoreland shaft, Mannoth, Hampheld, Saint Clair,	do. do. do. do. do. do. do.	Arm broken by a fall of slate. Leg broken by a fall of coal. Head badly cut while riding out on a full wagon. Leg broken by a fall of slate. Leg fractured by a fall of slate. Back severely injured by falling timber. Leg broken by a fall of horseback. Head and back severely injured by being caught by a large fall of roof coal.
Dec. 14,	Henry Smith, George Wilson,	Blacksmith, Miner,	65 30	M. M.	Hampton, Penn Gas No. 1 shaft,	Allegheny, Westmoreland,	Foot badly crushed by a loaded car. Leg crushed so that it was amputated above the knee: It was caused by carelessness by some miners in not setting the brakes on the wagons.

23,	Patrick McGuire, . .	Laborer, . . .	56	M.	Standard No. 2 shaft, . . .	do.	. . .	Collar bone broken by being caught between wagons as he was coming out of the engine house.
29,	John Bewley, . . .	Trapper, . . .	17	. . .	do.	do.	. . .	Arm and abdomen severely injured by falling in front of a wagon as he and another boy were running a wagon up and down the heading.
30,	Edward Fry, . . .	Miner, . . .	24	M.	S. H. Smith, . . .	do.	. . .	Back severely injured by a fall of slate which was not properly posted.



THIRD BITUMINOUS DISTRICT.

(ARMSTRONG, BUTLER, CLARION, INDIANA, JEFFERSON, LAWRENCE, MERCER, WESTMORELAND AND BEAVER COUNTIES.)

Hon. Thos. J. Stewart, Secretary of Internal Affairs:

Sir: In compliance with the requirements of section eleven of Article X of the Bituminous mining Act, approved May 15, 1893, I herewith submit my annual report of the inspection of the mines of the Third Bituminous district for the year ending December 31, 1893.

There were three persons fatally injured in the mines of the district during the year, which is an increase of one over last year, but the number (twenty-six) of non-fatal accidents remains the same. Although the death rate has increased 50 per cent over that of last year, the district's record for safety in a measure is maintained, and has yet but few equals, if any, when we take into consideration the comparative results relative to the coal tonnage and the number of persons employed per fatal accident. There were 1,074,710 tons of coal produced and 2,037 persons employed for each life lost, which is certainly a very satisfactory showing. From the reading of the report on the death of the boy Kesssler, it will be observed that he was not in the line of duty when he received his injuries, but was rather stealing a ride between the loaded mine wagons. Although the boy had been prohibited by both the station driver and mine foreman from riding on the loaded trips, he got on toward the rear end of one, unknown to any person, consequently through his disobedience of positive orders he lost his life.

The following table shows the causes of accidents, their number, etc., occurring during the year.

Causes of Accidents, etc., for 1893.	Fatal.	Non-fatal.	Widows.	Orphans
By falls of roof, ...		8		
By falls of coal, ...		6		
By mine wagons, ...	3	8	1	3
From miscellaneous causes, ...		4		
Total, ...	3	26	1	3

The following is a summary of the statistics for 1893, as shown by the official returns to this office from mine operators:

Number of mines in the district,.....	66
Number of miners (men) employed, ...	4,470
Number of boys under 16 years of age employed,.....	249
Number of "day men" employed inside the mines, including mine foremen, etc, ...	747
Number of "day men" employed outside of mines, ...	646
Total number of employes, ...	6,112
Number of tons (2,000 pounds each) of coal produced in 1893, ...	3,224,130
Increase in short tons of coal over 1892,.....	16,316
Number of short tons of coke manufactured in 1893,.....	27,039
Number of short tons of coal produced per fatal accident,..	1,074,710
Number of short tons of coal produced per non-fatal acci- dent, ...	124,005
Total number of days the mines were in operation during the year, ...	12,777
The average number of days for fifty-eight mines in the dis- trict, each of which was in operation over 100 days dur- ing the year, ...	220

There were five mines that did not work one hundred days each; fourteen mines that did not work 156 days or one-half time each; only twenty-one mines reached three-fourths time, and the highest number of days any one mine was in operation was 280.

There were but few labor troubles in the district during the year, and considered as a whole, the conditions of trade were fairly satisfactory when compared with that of the previous year; but at the present date from lack of trade, reductions in the prices of mining having been made, and from strikes now existing, mining affairs in some parts of the district are in rather an unsatisfactory condition.

For a description of the condition of the different mines in the district, of fatal and non-fatal accidents, and of the tabulated mining statistics, see the other parts of this report. The condition of the different mines in the district is very satisfactory. All of which is respectfully submitted.

THOMAS K. ADAMS,
Inspector.

Mercer, Mercer county, Pa., February 26, 1894.

RECAPITULATION OF THE IMPROVEMENTS AT THE MINES OF THE DISTRICT DURING THE YEAR.

At Avonmore mine an entry has been driven to the out-cropping of the coal seam and the dip of the workings for a considerable distance for the purpose of drainage.

At Big Soldier Run mine an entry has been driven a distance of 4,500 feet, so as to properly drain the workings of the Sprague mine, which is operated by the same company as that of the Big Soldier Run.

At Blackstone mine an air shaft has been sunk 66 feet and a substantial ventilating furnace is being built.

At Baker mine a new second opening has been provided.

At Fairbank mine an air shaft has been sunk and a ventilating furnace built.

At Fairmount No. 2 a wire rope haulage plant has been put in place.

At Enterprise mine a new drift opening has been provided.

At Excelsior, Church Hill and Clinton mines, second openings have been provided.

At Carver Mine a new hoisting shaft has been sunk during the year.

At Catfish Run Mine an air shaft has been sunk and a substantial ventilating furnace built.

At Brier Ridge and Beaver mines, new tipples and approaches thereto were built during the year.

At Leechburg mine a new tipple was erected, an air shaft sunk and a ventilating furnace built.

At Keystone mine an air shaft was sunk and a good ventilating furnace built.

At Stoneboro No. 3, a shaft 74 feet deep was sunk and fitted up with stairs, which will be used as a traveling way.

At Keister mine a new opening has been provided which will be utilized both as a haulage way and for drainage.

At Pine Run mine an air shaft has been sunk and a good ventilating furnace built.

At Star mine a complete new drift, equipped with a wire rope haulage plant, has been provided. This drift opening will be known as Star No. 4.

DESCRIPTION OF MINES.

Mines in Armstrong and Clarion Counties, Situated on the Allegheny Valley Railroad.

Along this railroad there are twelve mines. Kittanning, Pine Creek and Hardscrable mines have done little or nothing since last spring, and Mahoning, Gosford and Rimerton mines have been abandoned since that period.

Glen mine, at time of my last visit was still depending on the natural forces for producing the ventilation, but in replying to my remonstrance against this system, the operator informed me that he would provide artificial means as required by law for the purpose of providing sufficient air. Although this mine is a small concern, there was not a lawful amount of air in circulation; however, at certain periods the current is quite sufficient. The drainage of the mine was good.

Riverview mine was in excellent condition generally. At date of my last visit to this mine, 18,000 cubic feet of air was in circulation, which was being well distributed to the face of the workings thereof. The haulage roads were dry, and the drainage of the mine was excellent.

Monarch mine was not being operated in compliance with the law when I examined it on the 17th of October. The ventilation and drainage were defective, but in answer to my notification the mine foreman informed me that a new ventilating furnace would be built and the defects in drainage remedied.

Catfish Run mine.—The new opening was in excellent condition, both in regard to ventilation and drainage. At this opening the company has built a six-foot ventilating furnace, and an air shaft has been sunk in connection therewith. 10,000 cubic feet of air was measured near face of the works. At the old opening the mining being done is that of "drawing pillars" exclusively. Conditions were not so favorable here as those existing in the other opening, but I ordered the ventilation to be improved at once, which the owners promised to do.

Mineral Ridge mine at date of my last visit, October 16, was insufficiently ventilated. My examination of the mine was made late in the afternoon, and the furnace fire was "dampened" for the evening, which may have accounted for the rather small volume of air in circulation. However an opening was being made to the surface at face of works, which would be completed in a few days more and would greatly increase the volume of air. The drainage was good.

Church Hill mine was not in operation on the date of my last visit on October 16, but upon examination I could discover that the mine was not in as good condition as it should have been. The details relative to a proper distribution of the air current and mine drainage were somewhat neglected, but the mine foreman informed me that all defects would be promptly remedied.

Mines Located on the Low Grade Division and Sligo Branch of the Allegheny Valley Railroad.

Eleven mines are located along these branch railroads.

Cherry Run mine has been idle since last spring. My last visit to this mine was on January 24, 1892, and I found it then in good condition. It still remains idle at this date. Diamond mine has not been much in operation since the beginning of last summer, the cause of which is the lack of trade.

In Brier Ridge mine the ventilating current was not strong enough at the face of the workings, but from indications it would be somewhat improved in a few days from the date of my last visit. By the connecting of two air courses, thereby shortening the distance the air had to travel, the volume of air would, no doubt, be materially increased. A kind of "hap-hazard" system in working out the coal seam, and in conducting the ventilation, is in vogue in this mine. At what is known as the new opening, the ventilation at the face of works was not sufficient. The superintendent and mine foreman were notified to have the ventilation of both places improved at once. 9,000 cubic feet of air was circulating in the mine. A new tippie and road connections have been constructed here during the year.

Acme mine was in good condition generally. The volume of air in circulation, which was being well distributed, was 9,600 cubic feet per minute. The drainage was very good. There seemed to be a disposition shown by the mine foreman to turn rooms, in one of the "single" entries, ahead of the air current which was promptly stopped after the legal requirements relative to this matter were understood by the mine foreman.

At Keystone mine I measured 12,375 cubic feet of air passing at the outlet, and only small currents were measured near the face of the entries. The mine was very well drained. A squeeze or "creep" has been brought on the mine by employing a very injudicious system (single entry with small pillars) in mining the coal seam, which is giving the present mine foreman a great deal of anxiety and trouble, and in addition thereto largely increasing the cost of mining.

Long point mine has been brought under the law during the year and is therefore classed as a "new" mine, and is operated by the Long Point Coal Company. Officials are Joseph Lehmer, superintendent

and S. W. Phillips, mine foreman. Nineteen miners were employed at this mine at date of my last visit. The mine has been opened apparently without system. To create ventilation, an unprotected coal fire had been kindled at the bottom of a shallow shaft, and upon examining this ventilating power or contrivance I found the coal pillar on one side of the shaft on fire, which I ordered to be extinguished immediately.

Oak Ridge.—This mine consists of two drifts, opened into two different seams of coal. In the upper opening I measured 12,000 cubic feet of air circulating to near face of works, and in the workings of the lower opening there was 7,700 cubic feet of air. At the fan which is used to produce the ventilation for both places, 35,700 cubic feet of air per minute was measured, which was a sufficient volume of air for all purposes. The drainage of the mine was good.

There are two openings at Fairmount No. 2 mine, an upper and lower, mining two different seams of coal. At the inlet for both openings 44,000 cubic feet of air was measured per minute. The volume of air for the works in the upper opening was 10,600 cubic feet and was being well distributed. The other portion of the total volume of air was being distributed throughout the workings of the lower mine. The drainage was good in both places. A substantial system of wire rope haulage is in operation at the upper opening.

Fairmount No. 4 was abandoned last August, but a new opening is now being provided at some distance from the location of the old one and will soon be producing coal.

Star No. 3 has been abandoned and a new opening, to be known as Star No. 4, has been provided to take its place. There were 10,700 cubic feet of air circulating in this mine, well conducted to face of works through double headings. To produce the ventilation, a new ventilating furnace has been built and an air shaft sunk. The wire rope haulage plant which was used for haulage purposes at old No. 3 mine has been removed to the new opening to do similar work. The drainage was good.

Avondale mine was in good condition, both in regard to ventilation and drainage.

Mines Situated at Reynoldsville, Jefferson County.

Sprague mine is an extensive operation, and consists of two main openings. One is ventilated by a furnace, which is producing about 25,000 cubic feet of air, and the other by a six-foot fan, which is producing 23,500 cubic feet, or a total volume of air by both processes of 48,500 cubic feet. The workings of these two mines are principally connected, and a portion of the workings of the lower opening are connected with a part of those of the Big Soldier Run mine. Owing to the workings of the Big Soldier Run mine being on a lower level

than those of the Sprague, the workings of the latter mine can be easily and perfectly drained. This mine is in very fair condition.

Henry Bro's mine is not an extensive operation. I measured 9,500 cubic feet of air per minute circulating throughout the inner workings of the mine. The general condition was excellent.

The Standard is in fair condition. It will soon be exhausted, as most of the work now being done in it is that of removing the mine pillars.

New Hamilton was not in operation on the date of my last visit, but at a previous one I measured 16,300 cubic feet of air which was being fairly conveyed to the face of the workings. The general condition of the mine was fairly satisfactory.

Big Soldier Run Mine is the largest in extent of coal property and workings in the district. Is is ventilated by four "open running" 6-foot diameter fans and they are producing a total volume of about 50,000 cubic feet of air per minute at the inlets. One of those fans is placed near the bottom of the slope in the inner workings. The total volume of air is divided into three "splits" and the average quantity measured in the workings in each division or split was about 6,400 cubic feet. The coal seam at this mine has a 2 per cent. "dip," consequently the face entries are driven nearly at right angles to it, and the butt entries are all driven to the rise of the measure. Some of the face entries going in a north-east direction from main slope have been driven in about one mile and they have a long distance to be driven yet in the same course. The ventilation is fairly distributed throughout the workings. The drainage is perfect.

There is a splendidly equipped system of rope haulage at this mine. The coal product is hauled on the main slope from the mouth of the different face entries which are located on each side of the slope (the distance between the face entries located on each side of slope is 1,000 feet). The length of the wire rope system in the mine is about one mile. Fifty wagons, holding two tons of coal each, are brought out to tipple on each trip every twenty minutes.

Mines in Mercer and Butler Counties, Situated on the Pittsburgh, Shenango and Lake Erie Railroad.

Enterprise mine is a small operation, and when last examined it was in excellent condition, both in regard to drainage and ventilation.

The Old Oneida mine, which has been abandoned for the last few years has again been put in operation but has not been examined by me since operations were resumed.

Allegheny mine has been exhausted during the year.

At Roy mine I measured 8,400 cubic feet of air passing at inlet to the mine, which was being fairly distributed to the face of the workings. The drainage was very good.

In Keister mine the volume of air passing near the furnace was 5,250 cubic feet. At face of entries in the new opening the air current was not strong, but an air shaft will be sunk and a furnace built for this opening soon. The drainage was very good, considering that the mine is very difficult to drain properly, owing to the very soft character of the floor. All main roads are required to be corduroyed before hauling cars by mules can be allowed to any extent.

At Gomersal mine, although it was not in active operation at date of last visit, I measured 6,800 cubic feet of air being produced, which was being reasonably conveyed to the workings.

The old Chisholm mine, which had been abandoned for several years is now undergoing repairs preparatory to again resuming mining operations.

In the Pine Grove or Spears mine at last examination, I measured 8,550 cubic feet of air near the inlet which was being produced by the exhaust from the steam pumps. About 4,000 cubic feet of air was measured at face of entries. The drainage was reasonable. Some improvement has been made to the main hauling road during the year.

At Black Diamond Nos. 1 and 2, the workings of which are connected, I measured at the main inlet 20,790 cubic feet of air passing which was being divided into nearly three equal "splits" or divisions and conveyed fairly well to all the workings. The general conditions as to ventilation and drainage were reasonably good.

Chestnut Ridge mine at date of last visit was idle, but I examined that portion of the mine in which I had found the drainage and ventilation somewhat defective at the previous examination and observed that a good deal of repairing had been done and conditions were very much improved. The quantity of air for this portion of the workings was 6,460 cubic feet, but the whole volume of air measured at the ventilating fan at the previous visit was 13,800 cubic feet.

At Pardoe mine I measured 17,000 cubic feet of air passing which was being conveyed to the face of the different entries. Owing to the irregular or wavy character of the position of the coal seam at this mine, good drainage is very expensive to maintain; however, it is reasonably good.

At Hallville mine I measured 8,125 cubic feet of air in circulation on main return air course. The ventilation was reasonably good in one portion of the mine, but in that portion in which new territory was being opened out, the current of air was weak and at a point on main haulage way the drainage was defective. These defects were ordered to be remedied at once.

Other Mines Located in Mercer County.

At Lackawannock mine I measured 13,200 cubic feet of air in circulation, which was being well distributed throughout the different portions of the workings, and it was found in excellent condition otherwise.

Shenango mine is now undergoing repairs preparatory to resuming mining operations after having been idle for about one year.

Ormsby slope has again resumed operations after having been idle for about one year. During my visit a few days ago, I measured 7,250 cubic feet being passed into the mine. The drainage has not yet been perfected, neither was the quantity of air as large as the conditions of the workings required. I notified the managers to have all defects remedied.

At the Carver mine I measured only small volume of air moving near the face of workings; the total quantity, however, measured near the ventilating fan (inlet) was 12,675 cubic feet. The drainage was reasonably good for such a mine.

At Stoneboro No. 2, I measured 18,000 cubic feet of air per minute at outlet, but owing to the workings being located at such a long distance from the ventilating power, the currents of air were rather weak at their extreme end. The drainage was reasonably good for such a mine.

At Stoneboro No. 3, 5,600 cubic feet of air was moving throughout the workings of the mine. In one entry in particular the ventilation was defective; however, it has been greatly improved recently. The mine generally has undergone considerable repairs during the last two months of the year. Also, a new traveling way (shaft opening) has been provided near the face of the workings which will be a very essential improvement.

The Jackson mine does not give employment to a sufficient number of miners to bring it under the provisions of the mining law.

Mines Situated in Lawrence and Beaver Counties.

The Penn mine has not been in operation for several months.

At Baker mine another drift has been opened into a small coal territory adjacent to that of the old mine and the workings of each are connected. The workings of both places are ventilated by the same ventilating power. The quantity of air in the workings of the new mine was not sufficient, therefore, the mine as a whole was not sufficiently ventilated, but in other respects it was in fair condition.

The Thompson Run mine was not in operation on the date of my last visit, consequently there was no fire in the ventilating furnace, but should one be kept in it, the furnace is of ample size to produce

plenty of ventilation for such a mine. The drainage was good in the workings of the main opening which is the one situated on the south side of the ravine. The opening on the north side of the ravine had not a sufficient number of miners working in it to bring it under the legal regulations.

At Beaver mine I measured 13,000 cubic feet of air per minute in circulation, which was sufficient to afford ample ventilation. The mine was in a reasonably good condition both in regard to ventilation and drainage.

At Clinton mine there are two different seams of coal (Upper Freeport and one of the Kittannings) being mined. The lower mine was in very good condition. The volume of ventilation at lower mine was 8,400 cubic feet. A second opening is being provided for the lower mine. The Upper mine was in very good condition generally.

At the Wampum Run colliery I measured 7,140 cubic feet of air in circulation, but much of it was lost through leakage before it reached the face of the workings. A second opening was being provided and as soon as completed it would have a beneficial effect in increasing the volume of air. The general condition of the mine was fair.

At Rock Point mine 7,800 cubic feet of air was measured, which was being very well conveyed to the face of all the entries and inner workings. The mine was in good condition, both in regard to drainage and ventilation.

The Sterling mine will soon be exhausted, but two mines are being opened (not far from the old one) by the same company. 9,000 cubic feet of air was in circulation in old mine at date of last visit. The pillars were being removed preparatory to the abandonment of the mine. It was in fair condition.

The Cannelton mine was not in operation at date of last visit and is not now under the requirements of the law, owing to there being fewer than ten miners employed.

The Clayton colliery is a small concern which was examined recently and found in very fair condition in regard to ventilation and drainage.

The Beaver Falls mine was not in operation at date of last visit, owing to there being a strike among the miners.

Mines Situated Along the West Penn Railroad in Westmoreland and Armstrong.

Fairbank and Foster mines.—At the former mine there was 12,700 cubic feet of air in circulation. The air current was somewhat weak at the face of some of the entries, but to remedy this defect, an air shaft was being sunk and it was just about completed at date of my

last visit. The location of the air shaft is near the face of the workings, and when the furnace is built, ample ventilation will be produced. The drainage was good. I measured 14,700 cubic feet of air passing through the workings of the Foster mine. This mine was found to be in excellent condition in all respects.

At the Avonmore mine 22,000 cubic feet of air per minute was the quantity passing near the outlet of the mine, which had been well conveyed to the inner workings. The mine as a whole was found in reasonably good condition.

At Apollo mine the ventilating power has not yet been erected, but as soon as a proper location is reached in the mine, an air shaft will be sunk and a ventilating furnace built. There are only about eighteen miners employed at this mine, and it was found to be in a healthful condition. The drainage was excellent.

Leechburg Nos. 3 and 4 mines.—At No. 3 I measured 8,100 cubic feet of air in circulation, which was double the amount required by law and I also found the workings in a very satisfactory condition, both in regard to ventilation and drainage. At No. 4 an air shaft has been sunk, and since my last visit, a ventilating furnace has been built which will be a power sufficient to produce two or three times the lawful volume of air required for such a mine. The tippie at this mine was completely destroyed by fire, but has been rebuilt.

Bagdad Nos. 2 and 3 mines.—At No. 2, upon examination, I found that the furnace fire was very low, consequently the volume of air in circulation was not sufficient for the mine, but the power of the furnace, if properly attended to, is capable of producing an abundance of ventilation for such a mine. This mine, however, is usually in good condition. At No. 3, 9,600 cubic feet of air were passing through the workings, which was ample for all purposes. The mine was in good condition.

At Pine Run mine an air shaft has been sunk and a substantial furnace built, which, if properly attended to, will insure a sufficient volume of air for several years to come. The mine is in good condition at present.

At Blackstone mine an air shaft has been sunk to the depth of 64 feet and 6 feet by 6 feet in area. At date of last visit, the bricks were in the mine with which to build a substantial furnace. The air currents were weak at face of workings, but there was a volume of 8,000 cubic feet of air passing near the outlet. The mine will soon be in very good condition.

The West Penn and Beale mines were not in operation at the dates of my last visits to that region.

Since my last annual report, the following is a list of names of persons who have been granted certificates of competency to enable

them to act as mine foremen, in compliance with the requirements of the Bituminous mining act.

Charles Whitlach, Stoneboro, Mercer county, Pa.

George H. Summers, Hites, Allegheny county, Pa.

William T. Lace, Fairmount City, Clarion county, Pa.

John L. McNamee, Ferris P. O., Butler county, Pa.

Alexander M. Oliver, Rathmel, Jefferson county, Pa.

Arthur Berry, Cannelton, Beaver county, Pa.

TABLE NO. 1.—*Showing location &c., of collieries in the Third Bituminous Mine District.*

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Postoffice Address.
Apollo, ...	Maher Coal and Coke Company,	Westmoreland,	T. G. Cornell,	Freeport, Armstrong county.
Avonmore, ...	Avonmore Coal Company,	Armstrong,	L. W. Hlicks,	Leechburg, Armstrong county.
Acme, ...	Acme Mining Company,	Clarion,	J. W. Hill,	East Brady, Clarion county.
Black Diamond No. 1,	Filer, Sutliff & Company,	Mercer,	Frank Filer,	Mercer, Mercer county.
Black Diamond No. 2,	do.	do.	do.	do.
Bagdad No. 1,	Bagdad Coal Company,	Westmoreland,	Alfred Hicks,	Leechburg, Armstrong county.
Bagdad No. 2,	do.	do.	do.	do.
Blackstone, ...	Lewis Coal Company,	Jefferson,	N. S. Hicks,	do.
Big Soldier Run,	Bell, Lewis & Yates Coal Mining Company,	Beaver,	John H. Bell,	Reynoldsville, Jefferson county.
Baker, ...	L. S. Hoyt,	Armstrong,	L. S. Hoyt,	Hoyleville, Beaver county.
Beate, ...	Beate & Clayton,	Beaver,	George Knapschell,	Leechburg, Armstrong county.
Beaver Falls,	C. N. Shinn,	Clarion,	James Clayton,	Beaver Falls, Beaver county.
Beaver Ridge,	Beaver Coal and Coke Company,	Lawrence,	John Hartman,	Hummersburg, Clarion county.
Bearcaton, ...	Morgan Coal Company,	Beaver,	H. K. Hartman,	Hoydale, Beaver county.
Carver, ...	W. F. Clayton,	do.	H. V. Sanor,	Catchish, Beaver county.
Chestnut Ridge,	Carver Coal Company,	Mercer,	W. F. Clayton,	Mercer, Mercer county.
Catfish Run,	Filer, Westernman & Company,	do.	Frank Filer,	Beaver Falls, Beaver county.
Clinton, ...	Catfish Run Coal Company,	Clarion,	Enoch Filer, Jr.,	Grove City, Mercer county.
Cherry Run,	Cherry Run Coal Company,	Lawrence,	Charles J. Tighe,	Catfish, Clarion county.
Church Hill,	Church Hill Coal Company,	Clarion,	A. W. Harblson,	Hoyleville, Beaver county.
Diamond, ...	Thomas Mitchell & Sons,	do.	John J. Humphreys,	Rimersburg, Clarion county.
Excelsior, ...	Wampum Run Coal Company,	do.	John McCollum,	205 Elm St., Oil City, Venango county.
Enterprise, ...	P. D. Sherwin,	Butler,	George Mitchell,	Rimersburg, Clarion county.
Farmount No. 1,	Farmount Coal and Iron Company,	Clarion,	F. F. Andrews,	Wampum, Lawrence county.
Farmount No. 2,	do.	do.	P. D. Sherwin,	Karns, Butler county.
Farmount No. 3,	do.	do.	S. Taylor Sheaffer,	New Bethlehem, Clarion county.
Farmount No. 4,	do.	do.	do.	do.
Farmount No. 5,	do.	do.	J. J. McGonigle,	Salisbury, Indiana county.
Farmount No. 6,	do.	do.	do.	do.
Farmount No. 7,	do.	do.	J. R. Smith,	Manorville, Armstrong county.
Farmount No. 8,	do.	do.	William Ferguson,	Gomersal, Butler county.
Farmount No. 9,	do.	do.	D. D. Morris,	Grove City, Mercer county.
Farmount No. 10,	do.	do.	C. F. Hartwell,	Oil City, Venango county.
Farmount No. 11,	do.	do.	L. I. Hartwell,	Radersburg, Mercer county.
Farmount No. 12,	do.	do.	George G. Stage,	Greenville, Mercer county.
Farmount No. 13,	do.	do.	George E. Henry,	East Brady, Clarion county.
Farmount No. 14,	do.	do.	Henry Colwell,	Kittanning, Armstrong county.
Farmount No. 15,	do.	do.	Arby McIntyre,	Neshannock, Mercer county.
Farmount No. 16,	do.	do.	A. W. Ashbaugh,	Leechburg, Armstrong county.
Farmount No. 17,	do.	do.	do.	do.
Farmount No. 18,	do.	do.	Joseph Lehnner,	East Brady, Clarion county.
Farmount No. 19,	do.	do.	C. W. H. Eiche,	West Monterey, Clarion county.
Farmount No. 20,	do.	do.	H. A. Reynolds,	Mahoning, Armstrong county.
Farmount No. 21,	do.	do.	C. P. McCafferty,	East Brady, Clarion county.
Farmount No. 22,	do.	do.	John H. Bell,	Reynoldsville, Jefferson county.
Farmount No. 23,	do.	do.	J. C. Baker,	Oak Ridge, Armstrong county.
Farmount No. 24,	do.	do.	James Dye,	Jackson Centre, Mercer county.

TABLE No. 1—Continued.

Name of Colliery.	Name of Operators.	Location—County.	Name of Superintendent.	Postoffice Address.
Oneida, ...	C. A. Jewell, ...	Butler, ...	C. A. Jewell, ...	Grove City, Mercer county.
Pine Run, ...	Pine Run Coal Company, ...	Westmoreland, ...	Alfred Hicks, ...	Leechburg, Armstrong county.
Pine Creek, ...	Gano & Murry, ...	Armstrong, ...	John L. Murray, ...	Mosgrove, Armstrong county.
Penn, ...	Penn Coal Company, ...	Lawrence, ...	W. H. Johnson, ...	New Castle, Lawrence county.
Pardoe, ...	Mercer Coal Company, ...	Mercer, ...	W. H. Richardson, ...	Greenville, Mercer county.
Riverview, ...	Riverview Coal and Mining Company, ...	Armstrong, ...	James Moore, ...	No. 22 West Swan street, Buffalo, N. Y.
Rock Point, ...	Rock Point Coal Company, ...	Lawrence, ...	William Brown, ...	Wampun, Lawrence county.
Shenango, ...	Bell, Lewis & Yates Coal Mining Company, ...	Jefferson, ...	John H. Bell, ...	Reynoldsville, Jefferson county.
Sprague, ...	Mercer Coal and Iron Company, ...	Mercer, ...	Robert P. Cann, ...	Stoneboro, Mercer county.
Stoneboro No. 1, ...	do, ...	do, ...	do, ...	do, ...
Stoneboro No. 2, ...	Pine Grove Coal Company, Limited, ...	Clarion, ...	James Spears, ...	Grove City, Mercer county.
Spears, ...	Northeastern Coal and Iron Company, ...	Beaver, ...	S. Taylor Sheaffer, ...	New Bethlehem, Clarion county.
Star No. 4, ...	Sterling Mining Company, ...	Jefferson, ...	George Gould, ...	Cannelton, Beaver county.
Sterling, ...	Cant Brothers, ...	Butler, ...	George F. Cant, ...	Reynoldsville, Jefferson county.
Standard, ...	C. A. Jewell, ...	Butler, ...	C. A. Jewell, ...	Grove City, Mercer county.
Turner, ...	Thompson Run Coal Company, ...	Beaver, ...	William Douthett, ...	New Castle, Lawrence county.
Thompson Run, ...	J. L. Turner, ...	Butler, ...	J. L. Turner, ...	Royor Ferris, Butler county.
Roy, ...	West Penn Coal Company, ...	Westmoreland, ...		Leechburg, Armstrong county.
West Penn, ...				

TABLE NO. 2.—Gives the total number of tons of coal mined and tons of coke produced in each colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, &c., in the Third Bituminous Mining District, for the year ending December 31, 1893.

Names and Location of Collieries.	Third Bituminous District.									
	Total production in tons of coal.	Total production in tons of coke.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.
Avondale, Clarion county.	46,045	..	46,045	219	90	..	..	170	..	5
Apollo, Westmoreland county.	15,560	..	15,560	276	34	..	..	98	..	..
Academy, Lawrence county.	52,200	..	50,000	205	107	..	1	..	..	6
Acme, Clarion county.	52,200	..	52,200	205	107	..	..	..	..	2
Black Diamond No. 1, Mercer county.	31,120	..	33,288	204	75	..	..	201	4	1
Black Diamond No. 2, Mercer county.	31,222	..	30,282	150	61	..	..	180	4	6
Bagdad No. 2, Westmoreland county.	13,500	..	13,500	277	29	..	..	150	..	6
Bagdad No. 3, Westmoreland county.	20,000	..	20,000	277	34	..	..	200	..	2
Blackstone, Westmoreland county.	28,632	..	28,272	260	65	..	..	600	6	58
Big Soldier Run, Jefferson county.	547,802	20,383	517,318	246	608	3	..	3,920	..	100
Baker, Beaver county.	54,000	..	51,620	200	116	..	..	200	..	6
Beaver Falls, Beaver county.	7,177	..	6,101	221	17	..	..	..	..	2
Beale, Armstrong county.*	6,000	..	6,000	175	12	..	..	..	..	..
Brier Ridge, Clarion county.	78,426	..	77,880	253	140	..	..	435	1	6
Beaver, Lawrence county.	37,348	..	37,348	281	137	..	..	456	1	12
Cannelton, Beaver county.	13,960	..	13,215	172	26	..	..	50	..	3
Clayton, Beaver county.	5,515	100	5,300	250	12	..	..	40	..	2
Carver, Mercer county.	58,803	..	57,303	200	127	..	..	356	6	10
Chesnut Ridge, Mercer county.	53,583	..	53,137	203	128	..	..	80	5	13
Clatskill Iron, Clarion county.	34,428	..	34,428	250	76	..	..	125	..	6
Clanton, Lawrence county.	30,032	..	30,031	248	72	..	..	150	..	8
Church Hill, Clarion county.	3,000	..	3,000	75	30	..	..	..	..	..
Diamond, Clarion county.	30,200	..	30,000	225	32	..	..	..	..	4
Excelsior, Lawrence county.	63,750	..	63,750	89	93	..	..	273	..	7
Enterprise, Butler county.	12,250	..	12,250	174	22	..	..	56	..	8
Farmount No. 2, Clarion county.	247,335	..	245,835	278	426	1	..	1,700	2	30

* Approximated.

TABLE No. 2, — *Continued.*

Name and Location of Collieries.

Name and Location of Collieries.	Total production in tons of coal.	Total production in tons of coke.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.	Number mine locomotives.	Number coke ovens.
Fairmount No. 4, Clarion county.	25,854	..	25,854	174	68	..	..	300	1	17	1	..
Fairbank, Westmoreland county.	43,586	..	43,586	163	110	..	..	..	..	..	..	..
Gosport, Indiana county.	13,300	..	13,300	87	17	..	..	..	..	..	..	..
Gosport, Butler county.	14,986	..	14,986	265	33	..	..	98	..	4	..	..
Guersal, Butler county.	44,610	..	44,610	200	81	..	1	250	..	8	..	..
Hallville or Morris, Mercer county.	91,098	..	91,098	278	103	..	..	350	3	..	..	..
Henry Brothers', Jefferson county.	33,657	..	33,448	181	64	..	1	410	..	3	..	..
Hardcrabble, Clarion county.	10,000	..	10,000	135	35	..	..	..	..	4	..	..
Keister, Butler county.	33,047	..	38,537	187	100	..	..	100	..	6	..	50
Keystone, Clarion county.	40,000	..	40,000	220	77	..	..	250	..	7	..	..
Kittanning, Armstrong county.	9,756	..	..	110	55	..	1	..	..	5	..	66
Lackawannock, Mercer county.	8,400	..	8,400	116	42	..	..	385	..	2	..	..
Leechburg No. 3, Westmoreland county.	23,850	..	25,610	265	48	..	..	..	1	4	..	..
Leechburg No. 4, Westmoreland county.	20,150	..	20,120	280	36	..	..	..	..	3	..	..
Long Point, Clarion county.	5,613	..	5,583	..	35	..	..	..	..	1	..	..
Monarch, Clarion county.	26,200	..	26,200	169	50	..	..	150	..	4	..	..
Mineral Ridge, Clarion county.	34,200	..	34,200	..	74	..	..	250	..	5	..	..
Maioning, Armstrong county.	..	..	..	..	..	..	..	..	..	..	..	..
New Hamilton, Jefferson county.	113,839	..	113,839	205	164	..	..	800	..	16	..	..
Oak Ridge, Armstrong county.	120,083	..	118,950	133	232	..	..	1,023	..	11	..	..
Ormsby Slope, Mercer county.	4,322	..	3,901	63	37	..	..	12	2	9	..	..
Onieda, Butler county.	3,000	..	3,000	70	35	..	..	..	..	2	..	..
Pine Run, Westmoreland county.	30,300	..	30,300	130	34	..	1	250	..	4	..	..
Pardoe, Mercer county.	61,002	..	61,002	222	53	..	..	..	..	4	..	..
Penn. Lawrence county.	15,148	..	15,148	123	123	..	..	223	4	14	..	..
Riverview, Armstrong county.	79,397	..	79,397	155	68	..	..	..	..	6	..	..
Roy, Butler county.	49,527	..	49,527	190	135	..	..	..	..	12	..	..
Rock Point, Lawrence county.	51,000	..	49,527	263	77	..	1	200	1	8	..	..
Spruque, Jefferson county.	179,850	..	179,850	280	89	..	..	45	..	6	..	..
Stoneboro No. 2, Mercer county.	52,587	..	179,850	215	310	..	..	1,280	1	37	..	..
Stoneboro No. 3, Mercer county.	17,208	..	50,084	251	146	..	..	180	1	17	..	..
Spears, Mercer county.	49,800	..	49,800	140	72	..	..	73	3	5	..	..
		..		240	66	..	..	..	..	6	..	..

Star No. 3, Clarion county, ...	120,330		159,330	268	211	1	6	650	1	19		218
Sterling, Beaver county, ...	36,105		36,105	210	59			225		8		
Standard, Jefferson county, ...	72,676		72,676	221	108			512		5		
Turner, Butler county, *	10,000		10,000	135	30				2	4		
Thompson Run, Beaver county, ...	34,499		34,499	210	63		1	300		5		
West Penn, Westmoreland county, *	6,000		6,000	100	22					2		
Totals, ...	3,224,130	27,039	3,162,831	12,777	6,112	3	25	17,416	61	521	3	218

* Approximated.

TABLE NO. 3.—Showing the number of each class of employes at each colliery in the Third Bituminous Mine District, during the year 1893.

Name and Location of Collieries.	Number of Persons Employed Inside.					Number of Persons Employed Outside.							
	Inside foreman or mine boss.	Miners.	All company men.	Drivers and runners.	Doorboys and helpers.	Total inside.	Outside foreman.	Blacksmiths and carpenters.	Engineers and firemen.	All company men.	Superintendents, bookkeepers and clerks.	Total outside.	Grand totals—inside and outside.
Avondale, Clarion county.	1	75	1	5	1	88	..	1	..	6	..	90	90
Apollo, Westmoreland county.	1	29	..	2	..	32	..	..	..	1	..	34	34
Avonmore, Armstrong county.	1	90	2	8	3	100	..	1	..	3	..	107	107
Acme, Clarion county.	1	73	8	6	2	89	..	2	1	3	..	94	94
Black Diamond No. 1, Mercer county.	1	50	4	4	5	63	..	2	2	4	..	68	68
Black Diamond No. 2, Mercer county.	1	40	3	3	2	51	1	2	2	4	..	60	60
Bagdad No. 2, Westmoreland county.	1	23	..	3	..	27	..	..	..	1	..	28	28
Bagdad No. 3, Westmoreland county.	1	25	1	4	1	31	..	1	..	2	..	34	34
Blackstone, Westmoreland county.	1	52	1	4	..	59	1	1	..	3	..	65	65
Big Soldier Run, Jefferson county.	2	472	12	38	18	542	1	3	3	55	4	596	608
Baker, Beaver county.	1	94	3	8	2	108	1	3	1	3	..	116	116
Beaver Falls, Beaver county.	1	14	..	1	..	16	..	..	..	..	..	17	17
Beale, Armstrong county.*	1	9	..	1	..	11	..	..	..	1	..	12	12
Brier Ridge, Clarion county.	1	114	2	9	4	130	..	2	3	5	..	140	140
Beaver, Lawrence county.	1	110	5	4	..	130	..	2	3	9	3	137	137
Cannelton, Beaver county.	1	20	1	2	..	24	..	..	..	1	..	26	26
Clayton, Beaver county.	1	9	..	..	..	11	..	..	..	1	..	12	12
Carver, Mercer county.	1	90	10	8	4	113	1	2	2	7	..	127	127
Chestnut Ridge, Mercer county.	1	95	6	6	4	115	1	2	3	5	..	128	128
Catfish Run, Clarion county.	1	85	1	4	1	92	..	1	1	..	..	96	96
Cherry Run, rescue county.	1	53	2	5	..	64	..	..	..	4	..	72	72
Cherry Run, rescue county.*	1	23	1	3	..	28	..	..	..	2	..	30	30
Church Hill, Clarion county.	1	76	5	5	1	87	..	1	..	3	..	92	92
Diamond, Clarion county.	1	65	6	4	1	77	..	1	..	2	..	83	83
Excelsior, Lawrence county.	1	13	3	2	2	18	..	1	2	3	..	22	22
Enterprise, Butler county.	1	15	2	7	1	25	..	6	6	4	..	33	33
Enterprise, Butler county.	1	35	10	28	1	81	..	6	6	4	..	95	95
Enterprise No. 2, Armstrong county.	1	43	3	5	2	53	..	1	2	1	..	57	57
Enterprise No. 4, Clarion county.	1	45	3	5	2	56	..	2	2	4	4	63	68

Fairbank, Westmoreland county, ...	1	131	4	9	6	151	3	2	2	12	19	170
Foster, Indiana county, ...	1	34	2	2	1	40	1	1	3	2	7	47
Glen, Armstrong county, ...	1	25	..	2	..	28	..	..	3	2	5	33
Gomersal, Butler county, ...	1	65	6	5	1	74	1	..	4	1	5	81
Hallville or Morris, Mercer county, ...	1	80	6	5	..	93	..	2	6	1	10	103
Henry Bro's, Jefferson county, ...	1	48	1	3	..	53	..	..	9	1	11	64
Hardscrabble, Clarion county, *.	..	27	5	3	..	51	..	..	3	1	4	35
Kelster, Butler county, ...	1	58	2	3	1	73	1	..	11	2	13	53
Keystone, Clarion county, ...	1	96	3	3	..	42	..	..	..	..	11	51
Kittanning, Armstrong county, ...	1	33	1	2	..	32	..	2	13	..	13	51
Lackawanna, Mercer county, ...	1	33	2	2	..	44	..	..	3	..	6	42
Leedsburg No. 3, Westmoreland county, ...	1	28	1	1	..	34	1	..	5	1	4	48
Leedsburg No. 4, Westmoreland county, ...	1	30	2	1	..	34	..	..	3	1	5	36
Long Point, Clarion county, ...	1	49	1	4	..	55	..	..	1	..	1	35
Monarch, Clarion county, ...	1	60	1	5	..	67	..	..	5	1	7	74
Mineral Ridge, Clarion county, ...	..	..	..	..	..	..	..	..	..	..	..	..
Mahoning, Armstrong county, ...	1	140	8	10	2	156	1	..	6	1	8	164
New Hamilton, Jefferson county, ...	1	131	6	11	5	204	3	3	20	2	28	232
Oak Ridge, Armstrong county, ...	1	39	2	5	..	47	1	2	7	..	10	57
Ormsby Slope, Mercer county, ...	1	25	1	2	..	29	1	1	3	1	6	35
Oneida, Butler county, *.	1	25	1	2	..	29	1	..	2	2	5	34
Pine Run, Westm. reland county, ...	..	44	2	4	1	51	2	..	4	1	7	58
Pine Creek, Armstrong county, ...	1	91	4	9	3	108	2	5	6	2	15	123
Pardoe, Mercer county, ...	1	46	2	4	..	53	..	..	8	2	11	64
Penn. Lawrence county, ...	1	106	4	8	2	121	1	2	9	2	14	135
Riverview, Armstrong county, ...	1	61	1	5	..	69	1	1	4	2	8	77
Roy, Butler county, ...	1	73	1	5	..	80	1	..	6	2	9	89
Rock Point, Lawrence county, ...	..	..	..	..	..	..	..	..	..	..	..	..
Shenango, Mercer county, ...	1	259	8	21	10	299	2	2	6	1	11	310
Sprague, Jefferson county, ...	1	39	17	14	..	130	1	1	15	2	15	145
Stoneboro No. 2, Mercer county, ...	1	40	5	5	..	50	1	3	10	1	12	72
Stoneboro No. 3, Mercer county, ...	1	50	5	5	1	60	2	2	2	1	6	65
Star N., Mercer county, ...	1	140	5	16	5	176	6	4	20	4	35	211
Star N. 3, Clarion county, ...	1	41	2	4	2	53	..	..	4	1	6	59
Sterling, Beaver county, ...	1	90	1	5	3	96	1	..	6	1	8	108
Standard, Jefferson county, ...	1	21	1	3	..	26	..	..	2	1	4	30
Turner, Butler county, *.	1	51	2	2	..	57	1	..	5	2	6	63
Thompson Run, Beaver county, ...	1	15	1	2	..	19	..	..	3	1	3	22
West Penn, Westmoreland county, *.	1	..	..	..	..	..	..	..	..	..	..	..
Total, ...	64	4,715	197	387	99	5,466	12	78	60	395	646	6,112

* Approximated.

TABLE NO. 4—List of fatal accidents which occurred in and about the mines of the Third Bituminous Mine District for the year ending December 31, 1893.

Date of accident.	Name of Person.	Occupation.	Age.	Widow.	Number of orphans.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 14.	John Freeman, ...	Rope rider, . .	19			Star No. 3, ...	Clarion, ...	Freeman was fatally injured on Saturday at 2 o'clock and died the next Wednesday morning. He was the conductor or rope rider on the Tull rope and cable system, and it was his duty to ride on front end of each trip of cars, twelve in number from the inner station to the outside station. A good seat was provided for him to rest upon which also had a foot rest for his feet to rest upon. The seat was usually booked on to the end of the first wagon but failing to take it with him on this fatal trip he was obliged to ride out on the front end of it (trip) with one foot on the bumper of wagon and the other on the rope. Owing to the vibration of the rope, no doubt, he lost his footing, fell off the trip and was caught between the first wagon and rib or side of entry. The trip of cars was moving at an approximate speed of about six (6) miles per hour, and from all the evidence at the investigation I believe that had the young man taken and used his seat he need not have been injured even if the wagons had left the track.
May 2,	Henry Kessler, ...	Signal boy, . .	13			Fairmount No.	Armstrong, ...	This boy was fatally injured about 3 o'clock p. m., and only lived two hours after receiving his injuries. The driver had left the inside station with trip of twenty wagons and this being the last one for the day the boy was on his way home and got on the side of the train between the cars to ride to the outside of mine. The train had only got fairly started when he in some way lost his footing on the bumpers of the wagons and fell from the trip and was caught between the wagons and rib (side of entry), and was so severely injured that he only lived two hours. No person knew that the boy was on the trip of cars until the driver heard him after he was caught by them. He had been frequently forbidden to

ride on mine trains by both the mine foreman and station driver. Was fatally injured about 4½ o'clock p. m., and died early next morning. He received his injuries while taking a loaded wagon out of a room. He was in the mine car with it, hitching (iron rod used for connecting the wagons together) while Mr. McNeist (the mine foreman) worked in said room) was barring the wagon with a crow-bar at the rear end of it and when the car started to run down the light grade on room road, he was in the act of reversing himself for the purpose of putting his back against the wagon to enable him to better guide it around the room parting on to the entry and while doing so he raised his head too high and it was caught between the top of car and cross piece or bar (which was stretched across the roof for its support) thereby crushing his skull.

Sept. 21,

Robert Filer, ...

Driver, ...

26

Yes,

3

Black Diamond No. 1, . . .

Mercer, ...

TABLE NO 5—List of non-fatal accidents which occurred in and about the mines of the Third Bituminous Mine District, for the year ending December 31, 1893.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 25.	Henry Pitman, ...	Driver,	22	S	Big Soldier Run, ...	Jefferson, ...	Thumb broken by being caught between top of loaded car and roof.
Feb. 3.	Joseph Pantry, ...	Miner,	41	M.	do.	do.	Leg injured by a fall of coal.
15.	Malcom Carlson, ...	do.	30	S.	Gomersal, ...	Butler, ...	Back injured by a fall of slate.
16.	John Jones, ...	Driver,	31	S.	Allegheny, ...	do.	Ankle bruised by mine wagons.
22.	Adam Kaufmann, ...	Miner,	24	S.	Thompson Run, ...	Beaver, ...	Three fingers broken by fall of slate.
Mar. 4.	Mike Moran, ...	do.	31	M.	Arvonmore, ...	Armstrong, ...	Thigh badly bruised by fall of coal.
14.	G. B. Henry, ...	Driver,	34	M.	Henry Brothers, ...	Jefferson, ...	Foot injured by mine wagons.
Apr. 15.	R. B. Reed, ...	Miner,	36	M.	Star No. 3, ...	Clarion, ...	Injured by fall of coal.
15.	R. S. Reed, ...	do.	33	M.	do.	do.	Collar bone broken by fall of coal.
May 1.	Bernard McManahan, ...	Driver,	33	M.	Pardoe, ...	do.	Injured by fall of coal.
2.	John Stewart, ...	Miner,	21	S.	do.	Mercer, ...	Finger crushed by mine cars.
3.	John Glover, ...	do.	11	S.	do.	do.	Hands and face burned by premature blast of powder.
9.	Wm. McCafferty, ...	do.	23	M.	Star No. 3, ...	Clarion, ...	Foot injured by fall of rock.
26.	Wallace Say, ...	do.	34	M.	Ray, ...	Butler, ...	Injured by fall of slate.
10.	Alexander Cameron, ...	Driver,	25	S.	Hallville, ...	Mercer, ...	Arm burned by a premature explosion of powder.
20.	Hesal Shaner, ...	Trapper,	13	S.	do.	do.	Body and legs crushed by mine wagons.
19.	John Timmbaugh, ...	Miner,	51	M.	Big Soldier Run, ...	Jefferson, ...	Legs crushed by an explosion of dynamite.
19.	F. R. Kerr, ...	Driver,	15	S.	Star No. 3, ...	Clarion, ...	Leg broken by mine cars.
June 5.	William Hockenberry, ...	do.	51	M.	Pardoe, ...	do.	Head and body injured by a premature explosion of powder.
July 13.	William Campbell, ...	Miner,	39	M.	Pardoe, ...	Mercer, ...	Thigh bone broken by fall of slate.
17.	J. C. Delp, ...	Driver,	42	M.	Pine Run, ...	West moreland, ...	Injured by mine wagons.
23.	David Stevenson, ...	Miner,	30	M.	Kittanning, ...	Armstrong, ...	Injured by fall of slate.
Oct. 17.	Alexander Wright, ...	do.	53	M.	Pardoe, ...	Mercer, ...	Injured by fall of coal.
17.	Edward Campbell, ...	Driver,	16	S.	do.	do.	Injured by mine wagons.
Nov. 10.	Jacob Fouliz, ...	Miner,	16	S.	Hallville, ...	do.	Injured by fall of slate.

FOURTH BITUMINOUS DISTRICT.

(McKean, Potter, Tioga, Bradford, Sullivan, Lycoming, Clinton, Cameron and Elk counties and all those mines in Clearfield county adjacent to the Low Grade Division of the Allegheny Valley Railroad; also the mines adjacent to the Clearfield and Susquehanna Branch of the Pennsylvania Railroad; also the mines adjacent to the Buffalo, Rochester and Pittsburg Railroad in Jefferson and Clearfield counties.)

Hon. Thomas J. Stewart, Secretary of Internal Affairs:

Sir: I herewith submit my annual report as Inspector of Mines for the Fourth Bituminous Coal District of this State, for the year ending December 31, 1893, in compliance with the Act of Assembly of May 15, 1893, together with the usual tables compiled from the Annual reports of the operators returned to my office. These returns show an aggregate increase in production of nearly thirty-five per cent over that of the previous year. Two new mines have been opened, and two old ones have been worked out and abandoned during the year. The State Board of Examiners at their session in June last, made some changes in the lines of this district, taking from it the mines in Centre county, and adding the mines adjacent to the Buffalo, Rochester and Pittsburgh Railroad in Jefferson and Clearfield counties; also the mines adjacent to the Clearfield and Susquehanna Branch of the Pennsylvania Railroad in Clearfield county. This change in territory leaves the number of mines strictly subject to the inspection about the same as before. Improvements continue to be made at many of the mines and changes are being made in order to comply with the provisions and requirements of the new mining law. The number of fatal accidents was much less than that of the previous year, while the number of non-fatal accidents increased about one-half.

Respectfully submitted.

JAMES N. PATTERSON,
Inspector.

Blossburg, Pa., March 8, 1894.

SYNOPSIS OF REPORT.

Number of mines operated, ...	65
Number of tons of coal produced, ...	4,850,122
Number of tons shipped, ...	3,861,109
Number of tons of coke manufactured, ...	289,844
Number of days worked, ...	6,759
Number of miners employed, ...	7,077
Number of outside men, ...	1,216
Total inside and outside, ...	8,293
Number of horses and mules, ...	713
Number of mine locomotives, ...	21
Number of steam boilers, ...	77
Number of coke ovens reported, ...	1,621
Number of kegs of powder as per operators' report, .	25,858
Number of fatal accidents, ...	5
Number of non-fatal accidents, ...	22
Number of tons produced per each fatal accident, ...	970,024 2-5
Number of tons produced per each non-fatal accident, ...	220,460 1-11

Fatal Accidents.

Caused by mine car, ...	1
Caused by fall of coal, ...	1
Caused by fall of roof, ...	3
Total, ...	5

Non-fatal Accidents.

Caused by fall of roof, ...	8
Caused by fall of coal, ...	8
Caused by mine cars, ...	3
Caused by powder, ...	3
Total, ...	22

Number of mines in each county of which the district is composed with number of men employed and tons of coal mined in each:

McKean County—

Number of mines, ...	1
Number of men employed, ...	39
Number of tons of coal mined, ...	19,463

Clinton County—

Number of mines, ...	2
Number of men employed, ...	180
Number of tons of coal mined, ...	94,582

Clearfield County—

Number of mines, ...	9
Number of men employed, ...	1,575
Number of tons of coal mined, ...	976,130

Elk County—

Number of mines, ...	20
Number of men employed, ...	1,332
Number of tons of coal mined, ...	617,878

Tioga County—

Number of mines, ...	11
Number of men employed, ...	1,990
Number of tons mined, ...	942,252

Jefferson County—

Number of mines, ...	18
Number of men employed, ...	2,971
Number of tons or coal mined, ...	2,103,886

Bradford County—

Number of mines, ...	2
Number of men employed, ...	83
Number of tons of coal mined, ...	42,739

Lycoming County—

Number of mines, ...	2
Number of men employed, ...	118
Number of tons of coal mined, ...	53,192

TIOGA COUNTY MINES.

Antrim Nos. 1 and 5 were in very good condition when last examined. In No. 1 I found 75,600 cubic feet of air in circulation which was being well conveyed throughout the workings. The drainage is very good. At No. 5 I found 40,500 cubic feet of air well distributed to face of workings. Drainage is good.

Arnot Nos 3, 4 and 5 are ventilated by a 20-foot Guibal fan. Total quantity of air passing through three several divisions of Nos. 3, 4 and 5 was 92,400 cubic feet per minute, as measured at the out-

let. There are 528 persons employed in the mines, $92,400 \div 528 = 175$ cubic feet of air per minute for each person. Notwithstanding this, the anemometer failed to indicate any current in several of the headings, thus showing that the air was very poorly distributed. If one-half of this volume was properly conducted to the face of the headings the mine would be in a healthful condition. The drainage is also defective in some parts of the mine.

Fall Brook Nos. 3 and 6 were in good condition both in regards to ventilation and drainage. At last visit I measured 52,400 cubic feet of air at the former, and 10,500 cubic feet at the latter, which is well divided and circulated to the face of all the workings.

Morris Run Slope is in very good condition, with an average of 125,000 cubic feet of air passing at the inlet. This volume is judiciously divided and circulated to the face of all the workings. The mine drainage is also kept in good condition.

Salt Lake.—When last examined was in a satisfactory condition both as to ventilation and drainage.

Bear Run Mine.—Previous to the erection of the fan at this mine, I found the ventilation inadequate, owing to the furnace not having the capacity to produce the quantity of air needed for the number of persons employed inside. After the fan was placed in position, I found but little improvement in the ventilation. This was not properly the fault of the fan or its capacity, but was largely due to the imperfect condition of the airways, stoppings and doors. This condition resulted largely from abandoned workings which the air had to pass through, and leakage through the stoppings. With the stoppings put in good order, and the air coursed into its proper channel, there should be no cause of complaint on account of the ventilation. The drainage is defective in some parts of the mine.

Gurnee Mines have done but little during the year.

JEFFERSON COUNTY MINES.

At the Adrian No. 2 Slope.—Operated by the Pittsburgh and Rochester Coal and Iron Company. I measured 84,200 cubic feet of air in circulation, which was fairly well distributed to the face of the different parts of the mine. The drainage was very good.

Adrain No. 1 drift mine owned by the same company, has not been in operation during the year.

At Walston No. 1.—I measured 25,000 cubic feet of air in circulation, which was well distributed to face of workings. Drainage is good.

Walston No. 2, at last visit was in excellent condition, both in regard to ventilation and drainage.

At Walston No. 3.—I measured 85,000 cubic feet of air in circulation, which was being well distributed throughout the workings. The drainage is good.

Beachtree Nos. 3 and 4.—These mines when last inspected while in operation were in good condition. On my last two visits the mines were idle and the ventilation partially suspended, consequently I did not make any examination of the workings at those visits.

Eleanora Mine, operated by the Pittsburgh and Rochester Coal and Iron Company. Very extensive improvements have been made at this mine during the year. A ventilating fan "Guibal" pattern, twenty feet in diameter has been erected; fan when making forty revolutions per minute, produces an average of 50,000 cubic feet per minute. This volume is divided into several currents, and is well circulated through the mine. The haulage rope has been lengthened and the mine has been otherwise improved.

London Mine.—I measured at last visit 32,000 cubic feet of air in circulation, and I found the mine as a whole in fair condition.

Brock Mines.—When last examined were in fair condition as to ventilation and drainage. During the year the company has changed the motive power by substituting electric motors or electric locomotives for mules in these mines, for hauling the coal from near the point of mining to the tipple which work was for a number of years done by mules.

Clarion Mine No. 1.—This mine is kept in a healthful condition, with an average of 52,000 cubic feet of air passing at the outlet per minute. This volume is well distributed throughout the mine. The drainage is also good.

Clarion No. 2.—I measured 38,000 cubic feet of air which was being well circulated to the heads of the different entries. The drainage was defective in some parts of the mine.

Clarion No. 3 was not in operation on my last visit, and has only been operated about 90 days during the year.

Coal Glen Nos. 1 and 2.—Important improvements have been made at these mines during the year. An outlet for water on the south side of the workings has been made. Since this outlet has been completed, it does away with a steam pump, which had to be kept going night and day. They have also extended their haulage road 1,560 feet and changed the system of haulage from steam locomotive to that of a compressed air motor. The motor hauls from 21 to 30 cars each trip. A 200-horse power tubular boiler furnishes the steam for the compressors, also for a 10 H. P. engine running an 8 foot double "Murphy" fan. The south and south west sides of the mines are ventilated by a six foot "Clark" fan. The general condition of both mines is very good.

LYCOMING COUNTY MINES.

Red Run Mine.—When examined last was found to be in fair condition as to ventilation and drainage. Found 20,000 cubic feet of air passing at outlet.

McKEAN COUNTY MINES.

Instanter Mine.—The general condition of this mine is good. All parts of the workings are very well ventilated. The drainage is fair. Cleremont mine was idle during the year.

BRADFORD COUNTY MINES.

Long Valley No. 1.—Has not been in operation during the year.

Long Valley No. 2.—This mine has been well ventilated during the year with an average of 35,000 cubic feet of air passing at the inlet per minute. The distribution of this volume is well attended to. Drainage is fair.

CLEARFIELD COUNTY MINES.

Helvetia Mines Nos. 1 and 2, are ventilated by a 25 foot Guibal fan; total quantity of air passing in both divisions of No. 1 and 2 combined when last measured, was 120,500 cubic feet per minute. They have driven the main slope, manway and pipe heading over 2,000 feet, and ditched and timbered the slope and manway so as to make them both safe and comfortable for traveling and hauling purposes. They have relaid the main slope with forty-five pound iron rails which gives them the use of sixteen pound rails, with which it was formerly laid, for use in other headings, and have built an over-cast over the slope for an air-way and traveling way, for persons to pass from one side of the slope to the other. The over-cast is constructed of masonry and sheet iron in a very neat and substantial manner. They have put down a drill hole 200 feet in depth from the surface to the slope, and moved one of the larger pumps 200 feet farther down the slope, so as to collect the water from above that point, and discharge it through the drill hole to the surface, thereby saving 4,000 feet of 3 inch and 2,000 feet of 2 inch pipe for use with the smaller driving pumps further down the main slope and manway. They have also added another battery of boilers to strengthen the steam power by reason of the increased distance from the boiler house to the pumps.

Williamsport Mines Nos. 2, 3 and 4, I found in good condition. During the year the ventilation was maintained by two furnaces which furnished a sufficient supply of air in circulation. The roads are also well drained.

Dixon Mine.—This mine has been exhausted during the year, and was worked for several months with fewer than ten persons.

Brittanic.—I measured 5,200 cubic feet of air in circulation, which was fairly well conducted to the working places of the mine. Twenty persons are employed.

Cataract.—Was not in operation on my last visit. Was operated 134 days during the year.

Karthaws.—They have built a small ventilating furnace which was at the time of my last inspection producing 9,300 cubic feet of air per minute, and the air was well distributed to face of works. The mine was in good condition in other respects.

Sandy Lick.—The quantity of air has not been sufficient at all seasons of the year to keep this mine in a healthful condition. The drainage is fair.

Rochester Mine.—This mine has been in good condition during the year with an average of 75,400 cubic feet of air passing at the inlet per minute. The distribution of the air is well attended to. The drainage is also kept in fair condition.

Berwind-White Shaft.—On August 22, 1892, the Drake and Stratton Co. Ltd. commenced the sinking of the first shaft of the Berwind White Coal Mining Co., at DuBois, Pa. This shaft is situated about $1\frac{1}{2}$ miles east of the town and was put down under very difficult circumstances. At a point about forty feet from the surface the first water was struck which did not amount to very much; but as the work progressed more water was found, till at a point about eighty feet from the surface, it became necessary to put in two No. 10 Cameron pumps. At this point about 800 gallons of water per minute were being pumped. The work then progressed very rapidly until about one hundred feet was reached, when more water was encountered. From this point water was coming in, until a depth of 154 feet was reached, when a crevice in the rock let in a large quantity, variously estimated at from 1,000 to 1,500 gallons per minute. Four more pumps were required to take care of this increased quantity of water. At this point after carefully considering the matter, and in the meantime having been drowned out, they came to the conclusion that they could case this water out, which they did partly, by placing 12 x 12-inch White Oak timber, skin tight, and backing it up with concrete two feet thick made from gravel and Portland cement. This casing is thirteen feet in height. One pump now takes the water from this point. From this point down to the bottom, more or less water was encountered, and when coal was reached there were altogether, fourteen pumps in use. The shaft is 265 feet to the bottom of the coal, and is timbered from about twenty feet of the bottom, to the top, with 12 x 12-inch White Oak timber, placed four feet from centre to centre, and backed with two and a half inch White Oak planks. At the bottom there is a heading running north and south which is intended as the main heading, and is intended to be double tracked. This heading is

bricked up straight four feet and then arched over. On the east side there has been a small heading run to connect with No. 2 or air shaft of which I will speak later. On the west side there is a heading eighty feet which has at its end a sump twelve feet deep, twenty-one feet wide and forty feet long. This is lined with brick from the bottom and is arched as is the whole heading. From where the brick arches commence, at the shaft, pilasters are run up solid to the timber which rests on them. In this sump the pumping machinery is placed and consists of a "Jeanesville" duplex pump with a capacity of 3,500 gallons per minute, one duplex "Snow" pump with a capacity of 3,000 gallons per minute, and two No. 12 "Cameron" pumps, of 600 gallons each per minute. No. 2 shaft is now sunk seventy feet. At this point work was stopped owing to the large quantity of water coming in at No. 1, and the extra machinery, etc., it would require to push both shafts. This shaft, on which no work is being done at present, will be about the size of the hoisting shaft, that is, 13 x 21 feet. No. 1 shaft will have two hoisting compartments for pump columns. No. 2 shaft will have two compartments, one for air and one for a traveling way with steps on the surface.

At the top, the Berwind White Coal Mining Co., will erect a steel tippie and head-frame. The head-frame will be sixty-five feet to top of sheaves, which will be ten feet in diameter over which a 1½ inch steel cable will run, being hauled by two 1st motion engines of one hundred and fifty horse power each. Steam will be furnished by six 66 inch x 16 feet stationary boilers of seventy-five horse power each, all of which is in readiness for operations with the exception of the head frame and tippie.

ELK COUNTY MINES.

Cascade Mines Nos. 5 and 6.—These mines have been kept in good condition during the year.

Hazel Dell.—During the early part of the year the condition of this mine was not of the best, but at the time of my last visit it was much improved, and all parts of the mine were found to be in fair condition.

St. Mary's Mines, four in number, are in good condition and are nearly worked out.

Dagus Slope and Dagus Nos. 2 and 3 mines were found in good condition.

Shawmut Mines are in fair condition and have only operated during a portion of the year.

Mead Run Mines have been operated only during part of the year, and are in good condition.

Elbon Mine has done but little work during the year; is in good condition.

CLINTON COUNTY MINES.

Kettle Creek Mines.—Improvements at these mines have been continued throughout the year. They have constructed a number of overcasts to facilitate the ventilation, and much work has been done to keep the drainage in good condition. Continued efforts have been made to keep the mines in first class order, and well up to the requirements of the law.

TABLE NO. 1—Showing location &c., of collieries in the Fourth Bituminous Mine District.

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Postoffice Address.
Arnot Nos. 3, 4 and 5.	Bloss Coal Company.	Tioga, ...	R. T. Dodson, ...	Arnot, Pa.
Antrim Nos. 1 and 5.	Fall Brook Coal Company.	do.	James Pollock, ...	Antrim, Pa.
Adrian No. 1.	Rochester and Pittsburg Coal and Iron Co..	Jefferson, ...	David Fleming, ...	DeLancey, Pa.
Brook Nos. 1, 2 and 3.	Brook Coal Company.	do.	B. E. Cartwright, ...	Ridgway, Elk county.
Bear Run, ...	Bloss Coal Company.	Tioga, ...	R. T. Dodson, ...	Arnot, Tioga county. Pa.
Brittanic, ...	George Rees & Co.,	Clearfield, ...	George Rees, ...	Karhaus, Clearfield county.
Beachtree Nos. 3 and 4,	Rochester and Pittsburg Coal and Iron Co.,	Jefferson, ...	D. Fleming, ...	DeLancey, Jefferson county.
Cameron, ...	Cameron Coal Company.	Cameron, ...		
Cascade Nos. 1 and 2.	Kaul & Hall, ...	Elk, ...	Andrew Kaul, ...	St. Marys, Elk county.
Clarion Nos. 1 to 7, ...	Northwestern Mining and Exchange Company,	Jefferson, ...	D. Robertson, ...	Ridgway, Elk county.
Coal Glen Nos. 1 and 2,	Jefferson Coal Company,	do.	Austin Blakeslee, ...	Coal Glen, Jefferson county.
Claircut, ...	Berwind White Coal Mining Company,	Clearfield, ...	A. J. Cook, ...	Bellefonte, Centre county.
Claircut, ...	Northwestern Mining and Exchange Company,	McKean, ...	D. Robertson, ...	Heron, McKean county.
Dacus Mines Nos. 1 to 10,	Northwestern Mining and Exchange Company,	Elk, ...	D. Robertson, ...	Ridgway, Elk county.
Dixon, ...	Falls Creek Mining Company.	Clearfield, ...	John Reed, ...	DuBois, Clearfield county.
Elbon, ...	Noble Coal Company.	Elk, ...	George Mellinger, ...	Cartwright, Elk county.
Eleanora, ...	Rochester and Pittsburg Coal and Iron Co.	Jefferson, ...	S. A. Rinn, ...	Eleanora, Jefferson county.
Fall Brook Nos. 2 and 5,	Fall Brook Coal Company.	Tioga, ...	Anton Hardt, ...	Wellsboro, Tioga county.
Gurnee Nos. 1, 2 and 3,	Gaines Coal and Coke Company.	do.	Patrick C. Smith, ...	Gurnee, Tioga county.
Glen Fisher, ...	Standard Coal and Coke Company,	Elk, ...	W. M. Harrison, ...	Williamsport, Pa.
Hazel Dell, ...	Kaul and Hall, ...	do.	Andrew Kaul, ...	St. Marys, Elk county.
Helvetia slope, ...	Adrian Islen, ...	Clearfield, ...	John McLeary, ...	Stanley, Clearfield county.
Helvetia No. 1, ...	Buffalo Coal Company,	McKean, ...	John F. Keating, ...	Clermont, McKean county.
Instantier, ...	B. W. C. M. Co., Spears & Cowan, contractors,	Clearfield, ...	A. G. Spears, ...	Karhaus, Clearfield county.
Karhaus, ...	Kettle Coal Company,	Clinton, ...	George L. Miller, ...	Bitumen, Clinton county.
Kettle Creek Nos. 1 and 2,	Falls Creek Mining Company,	Jefferson, ...	John Reed, ...	DuBois, Clearfield county.
London, ...	Long Valley Coal Company,	Bradford, ...	E. O. Macfarland, ...	Towanda, Bradford county.
Long Valley, ...	Northwestern Mining and Exchange Company,	Elk, ...	D. Robertson, ...	Ridgway, Elk county. Pa.
Mead Run, ...	Morris Run Coal Mining Company,	Tioga, ...	W. S. Nearing, ...	Morris Run, Tioga county.
Morris Run Nos. 1 and 2,	Bel, Lewis & Yates,	Clearfield, ...	John Reed, ...	DuBois, Clearfield county.
Rochester Mine, ...	Red Run Coal Company,	Lycoming, ...	Robert Brownlee, ...	Ralsion, Lycoming county.
Sandy Lick, ...	Red Run Coal Company,	Clearfield, ...	John Reed, ...	DuBois, Clearfield county.
St. Marys Nos. 1, 2 and 3,	Shawmut Coal Company,	Elk, ...	George Mellinger, ...	Cartwright, Elk county.
St. Marys Nos. 1, 2, 3, 4 & 5,	St. Marys Coal Company,	do.	Joseph Eddy, ...	St. Marys, Elk county.
Tannerdale, ...	do.	do.	do.	do.
Williamsport Mines,	Clearfield Coal Company,	Clearfield, ...	A. K. Jacobs, ...	Tyler, Clearfield county.
Walston No. 1, ...	Rochester and Pittsburg Coal and Iron Co.,	Jefferson, ...	Geo. W. Snyder, ...	Walston, Jefferson county.
Walston No. 2, ...				
Walston No. 3, ...				

TABLE NO. 2.—Gives the total number of tons of coal mined and tons of coke produced in each colliery, number of days worked, number of employees, number of persons killed and injured, number of kegs of powder used, &c., in the Fourth Bituminous Mine District for the year ending December 31, 1893.

Names and Location of Collieries.	Total production in tons of coal.	Total production in tons of coke.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.	Number mine locomotives.	Number coke ovens.
Arnot Nos. 3, 4, and 5, Tioga county, ...	307, 998	984	304, 958	247½	642	1	2	2, 134	3	54	2	250
Antrim Nos. 1 and 5, Tioga county, ...	167, 893	..	91, 978	194	434	1	1	3, 000	4	26	2	425
Adrian No. 1, Jefferson county, ...	497, 454	84, 831	356, 710	246	663	1	1	..	12	94	..	..
Adrian No. 2, Jefferson county, ...	..	..	..	..	..	..	..	..	..	..	..	..
Brook Nos. 1, 2 and 3, Jefferson county, ...	85, 786	..	84, 554	252	168	1	1	1, 066	2	..	2	..
Bear Run, Tioga county, ...	107, 506	..	106, 188	184½	237	..	..	..	2	4	2	..
Brittanic, Clearfield county, ...	14, 900	..	270	270	27	..	..	..	..	..	..	..
Beachree Nos. 3 and 4, Jefferson county, ...	197, 836	..	197, 836	222	244	3	3	1, 692	3	36	..	..
Cameron, Cameron county, ...	..	..	..	..	..	..	..	..	..	..	..	..
Cascade Nos. 1 and 2, Elk county, ...	50, 777	..	50, 213	282	71	1	1	1, 860	2	4	1	..
Clarion Nos. 1 to 7, Jefferson county, ...	286, 896	..	286, 288	207	449	..	..	..	2	50	..	..
Coal Glen Nos. 1 and 2, Jefferson county, ...	119, 545	..	118, 545	133	234	17	17	778	1	31	1	..
Catawact, Clearfield county, ...	66, 152	..	66, 152	134	135	..	..	..	..	..	..	..
Clermont, McKean county, ...	..	..	..	..	..	..	..	..	..	..	..	..
Dagus Mines, Nos. 1 to 10, Elk county, ...	270, 455	..	267, 546	213	460	..	..	1, 450	9	28	2	18
Dixon, Clearfield county, ...	..	..	..	..	..	..	..	..	..	..	..	..
Elbow, Elk county, ...	..	..	..	..	..	..	..	..	..	..	..	..
Eleanor, Jefferson county, ...	308, 150	..	308, 150	298	358	..	..	1, 317	1	38	..	..
Fall Brook Nos. 2 and 6, Tioga county, ...	68, 420	..	56, 127	207	173	1	1	..	1	21	2	..
Gurnee Nos. 1 and 3, Tioga county, ...	5, 776	..	5, 803	204	11	..	..	..	..	..	..	..
Glen Elder, Elk county, ...	60, 714	29, 421	6, 684	240	125	..	..	500	3	8	1	100
Hazen, Elk county, ...	31, 377	75	31, 194	283	56	..	..	75	..	..	..	..
Harzetta Slope, Clearfield county, ...	238, 297	6, 133	238, 297	301	254	1	2	2, 650	6	21	..	28
Helvetia No. 1, Clearfield county, ...	..	..	..	..	..	..	..	..	..	..	..	..
Instanter, McKean county, ...	19, 463	..	19, 463	276	39	..	..	4	..	3	..	..
Karlhaus, Clearfield county, ...	64, 385	..	64, 385	93	93	..	..	..	..	..	..	..
Kettle Creek Nos. 1 and 2, Clinton county, ...	94, 582	180	94, 582	164	180	..	..	760	..	22	..	..

TABLE No. 3.—*Showing the number of each class of employes at each colliery in the Fourth Bituminous Mine District, during the year 1893.*

Names of Collieries—Location in County.	Number of Persons Employed Inside.						Number of Persons Employed Outside.						Grand totals—Inside and outside.						
	Inside foreman or mine boss.						Total inside.							Total outside.					
	Miners.	Miners' laborers.	All company men.	Drivers and runners.	Doorboys and helpers.		Outside foreman.	Blacksmiths and carpenters.	Engineers and firemen.	Slate pickers.	All company men.	Superintendents, bookkeepers and clerks.							
Arnott Nos. 3, 4 and 5, Tioga,	4	432	8	16	50	18	528	1	8	5	69	26	5	114	642				
Antrim Nos. 1 and 5, Tioga,	2	276	33	8	26	9	354	2	5	6	56	5	6	80	434				
Adrian No. 1, Jefferson,	2	437	25	17	34	8	523	1	5	10	1	121	2	140	663				
Adrian No. 2, Jefferson,																			
Brock Nos. 1, 2 and 3, Jefferson,	1	142	3	3	2	1	149					10	2	19	168				
Bear Run, Tioga,	1	182	6	18	4		211	1	5	5		15		26	237				
Britannic, Clearfield,	1	21			3		25					2		2	27				
Beachtree, Nos. 3 and 4, Jefferson,	1	211		1	12	7	232		2	1	1	7	1	12	244				
Cameron, Cameron,																			
Cascade Nos. 1 and 2, Elk,	1	58		2	4		65		1	1		3	1	6	71				
Clarion Nos. 1 to 7, Jefferson,	3	346		9	27	3	386	1	7	2		40	7	58	444				
Coal Glen Nos. 1 and 2, Jefferson,	1	170	32	6	9		218	1	2	2		9	2	16	284				
Catawact, Clearfield,	1	123		7	9	4	144				2	6	1	11	155				
Clermont, McKean,																			
Dagus Mines Nos. 1 to 10, Elk,	4	346		9	22	2	383	1	14	6		50	6	77	460				
Dixon, Clearfield,																			
Elbon, Elk,																			
Elkton, Jefferson,	1	300		6	23	7	337		3	4	1	11	3	21	358				
Fall Brook Nos. 2 and 6, Tioga,	2	105	12	5	18	5	147	2	3	3	15		3	26	173				
Gurnee Nos. 1, 2 and 3, Tioga,	1	10		1	1		13							1	14				
Glen Fisher, Elk,	1	79	3	3	5	3	94	1	3	4		6	3	17	111				
Hazel Dell, Elk,	1	47		2	4		54		1		1		2	24	253				
Helvetia slope, Clearfield,	2	200	6	4	13	4	229	1	4	3	2	12	2	24	253				
Helvetia No. 1, Clearfield,												18		18	18				
Instantan, McKean,	1	30		1	3		35		1	2			1	4	39				
Karlhaus, Clearfield,	1	75		3	5	1	85		1			6	1	8	93				
Kettle Creek Nos. 1 and 2, Clinton,	1	150		5	10	2	168		3	1		5	3	12	180				
London, Jefferson,	1	175		5	8	3	192		2			7		11	201				
Long Valley, Nos. 1 and 2, Bradford,	1	44		4	5	1	55		2	2		18	2	28	83				

TABLE NO. 3—Continued.

Names of Collieries—Location in County.	Number of Persons Employed Inside.						Number of Persons Employed Outside.						Grand totals—inside and outside.		
	Inside Foreman or mine boss.	Miners.	Miners' laborers.	All company men.	Drivers and runners.	Doorboys and helpers.	Total inside.	Outside Foreman.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	All company men.		Superintendent, bookkeepers and clerks.	Total outside.
Mead Run, Elk,	1	175	...	3	14	...	193	1	4	3	...	22	3	33	226
Morris Run Nos. 1 and 2, Toga,	3	547	...	...	53	25	628	1	1	4	83	...	1	102	730
Rochester mine, Clearfield,	2	500	...	7	46	12	567	1	1	1	...	21	3	39	606
Red Run, Lycoming,	1	78	...	3	5	3	90	1	1	2	2	13	3	28	118
Sandy Lick, Clearfield,	1	60	...	3	7	3	73	...	...	...	...	4	...	4	111
Shawmut Nos. 1, 2 and 3, Elk,	1	233	...	3	13	...	240	1	2	...	...	18	...	24	264
St. Mary's Nos. 1, 2, 3, 4 and 5, Elk,	2	100	...	6	6	...	111	1	1	2	...	12	2	19	130
Tannertate, Elk,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Williamsport Nos. 1, 2 and 3, Clearfield,	1	10	...	3	7	1	102	1	2	8	...	30	5	38	140
Walston No. 1, Jefferson,	1	104	...	1	10	5	124	...	...	...	...	...	...	...	...
Walston No. 2, Jefferson,	1	58	...	1	5	4	67	1	5	9	1	178	2	196	644
Walston No. 3, Jefferson,	1	221	...	11	14	11	258	...	...	...	...	...	...	...	...
Total,	51	6,110	125	172	477	142	7,077	20	112	95	237	680	75	1,216	

TABLE NO. 4.—*List of fatal accidents which occurred in and about the mines of the Fourth Bituminous Mine District for the year ending December 31, 1893.*

Date of accident.	Name of Person.	Occupation.	Age.	Widows.	No. of orphans.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 24,	Peter Survanosky, . .	Loader, ...	35	M.	..	Brock, ...	Jefferson, ...	Crushed between loaded car and shutes, causing internal injuries from which he died soon after.
Feb. 14,	Thomas Murray, . .	Miner, ...	21	S.	..	Fall Brook, ...	Tioga, ...	Instantly killed by fall of roof.
Apr. 28,	Stephen Gratson, . .	do.	30	M.	1	Adrian No. 1, ...	Jefferson, ...	Instantly killed by fall of coal.
Nov. 23,	Robert Hay, ...	do.	48	M.	..	Arnot No. 3, ...	Tioga, ...	Instantly killed by fall of roof.
Dec. 24,	John Niskovitch, . .	do.	27	M.	..	Helvetia, ...	Clearfield, ...	Instantly killed by fall of roof.

TABLE NO. 5.—List of non-fatal accidents which occurred in and about the mines of the Fourth Bituminous Mine District for the year ending December 31, 1893.

Date of accident.	Name of Person.	Occupation.	Age.	Married.	No. of children.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 9,	William Place,	Miner,	22	S		Rochester mine,	Clearfield,	Leg broken and back injured by fall of roof.
11,	William Brooks,	do.	19			Morris Run,	Tioga,	Leg bruised by mine car
16,	James Murray,	do.	25			Rochester mine,	Clearfield,	Ankle bruised by fall of roof.
Feb. 4,	August Anderson,	do.	25	S		Williamsport mine,	do.	Seriously injured by fall of roof.
Apr. 18,	Thomas Ashman,	do.	30	M.		Rochester mine,	do.	Small bone broken in his left foot by fall of coal.
May 4,	Oscar Gustafson,	do.	17	S		Arnot No. 3,	Tioga,	Leg broken by fall of coal.
Aug. 1,	Thomas Corbett,	do.	26	S		Walston No. 3,	Jefferson,	Leg broken by fall of coal.
Sept. 5,	William Evans,	do.	20	S		Arnot No. 3,	Tioga,	Collar bone broken by being thrown from a loader car.
5,	Livery Fidelli,	do.	26	S		Beachtree No. 3,	Jefferson,	Face and hands burned by an explosion of powder while filling a cartridge.
5,	Charles Benson,	do.	16			Walston No. 3,	do.	Arm broken by fall of roof.
26,	John Pickle,	do.	30	M.		Brook,	do.	Leg broken by fall of coal.
Oct. 26,	Alfred Johnson,	do.	34	S		Belvetia,	Clearfield,	Leg broken by fall of coal.
26,	Jacob Zagrisht,	do.	28	S		Beachtree No. 4,	Jefferson,	Arm broken by fall of roof.
Nov. 21,	Joseph Elash,	do.	23	M.		Crocker,	do.	Back injured by fall of roof.
21,	Alces Holten,	do.	16			Rochester mine,	Clearfield,	Hip bone broken by fall of coal.
22,	Joseph Kolaszkie,	do.	26	S		Beachtree No. 3,	Jefferson,	Leg broken by fall of coal.
24,	Zanooty Zepki,	do.	24	M.		Clarion No. 1,	do.	Seriously injured by fall of coal.
Dec. 2,	Domie Vach,	do.	55	M.		Belvetia,	Clearfield,	Indured by fall of roof.
2,	Stoeb Rodak,	do.	29	M.		Rochester mine,	do.	Leg and arm broken by fall of coal.
20,	Caleb Achman,	do.	31	M.		Antrim No. 5,	Tioga,	Thigh bone bruised by mine car at mouth of slope.
21,	Paul Krystoff,	do.	55	M.				

Fifth Bituminous District.

(FAYETTE AND SOMERSET COUNTIES.)

Hon. Thomas J. Stewart, Secretary of Internal Affairs:

Sir: I have the honor of herewith submitting my report as Inspector of Mines for the Fifth Bituminous district for the year ending December 31, 1893.

The following summary of statistics gives the figures for both 1892 and 1893, for the purpose of comparison:

Summary.	1893.	1892.
Number of mines in the district, ...	60	89
Number of mines operated during the year, ...	55	82
Number of mines idle during the year, ...	5	7
Number of new mines opened during the year, ...	3	1
Number of mines abandoned during the year, ...	1	2
Number of persons employed in the mines, ...	4,146	6,450
Number of persons employed outside the mines, ...	2,487	3,911
Total number of persons employed, ...	6,633	10,361
Total number of days worked by all the mines, ...	9,671	18,369
Average number of days worked by all the mines in operation, ...	158	224
Number of tons of coal mined (2,000 lbs.), ...	3,629,559	7,360,101
Number of tons of coal shipped (2,000 lbs.), ...	599,252	962,240
Number of tons of coke produced (2,000 lbs.), ...	2,092,993	3,117,958
Number of tons of coal mined for each fatal accident, ...	302,463	320,004
Number of tons of coal mined for each non-fatal accident, ...	82,490	103,664
Number of employes for each fatal accident, ...	553	280
Number of employes for each non-fatal accident, ...	151	107
Number of mules and horses in use, ...	581	570
Number of coke ovens built during year, ...	140	.. . . .
Number of coke ovens in district, ...	7,276	10,981
Number of mine locomotives in use, ...	7	15
Number of kegs of powder reported as used in mines, ...	4,032	8,385
Number of steam boilers in use, ...	175	230
Number of fatal accidents during the year, ...	12	23
Number of non-fatal accidents during the year, ...	44	71
Number of wives left widows by fatalities, ...	11	19
Number of orphans left by fatalities, ...	21	37

Causes of Accidents.	1893.		1892.	
	Fatal.	Non-fatal.	Fatal.	Non-fatal.
By falls of roof or slate, ...	8	15	18	17
By falls of coal, ...	2	6	...	3
By falls from scaffold, ...	...	...	...	1
By mine wagons, ...	2	16	5	33
By mules, ...	...	1	...	4
By dynamite, ...	...	...	...	2
By gunpowder, ...	...	2	...	...
By posts, ...	...	1	...	...
From miscellaneous causes, ...	...	3	...	11
Totals, ...	12	44	23	71

The marked difference in the production of coal and coke during the two years named in the above summary, is due to two causes: first, a decrease in the number of mines in the district from 89 to 60; second, a decrease in the average number of days worked by the miners during 1893. The average number of days worked by 82 mines in 1892, was 224; as compared with 158 days worked by 55 mines in 1893. The creation of two new inspection districts took 29 mines from this district, which are now included in the new Ninth district.

The difference in the average of days worked between the years 1892 and 1893, is due to the general depression in the coal and coke trade during the latter year.

There has been a decrease in the number of both fatal and non-fatal accidents as compared with the year 1892.

I am glad to be able to report that the mine operators, with but few exceptions, are desirous to obey the requirements of the law, and in many instances so far as relates to the quantity of air per man demanded by law in the mines, they have in circulation from three to four times the quantity that is required. There are a few, however, who persistently neglect to come up to its provisions, and it is only by the rigid enforcement of the law, that they can be made to do anything, to keep their mines within its requirements.

The majority of the mines in this district generate explosive gases, and are worked with locked safety lamps. It was a matter of great surprise to me on my first tour around the mines to find the gross carelessness which existed with reference to the manner in which the lamps were handled by the workmen, while at work. They took no precautions to prevent themselves from being injured but on the contrary they placed them in such positions as would expose them to the greatest dangers, such as placing them on the floor of the mine within

swing of their picks, and other tools, and hanging them on posts in the gob, where falls of rock were liable to damage them. I place a great deal of the responsibility for this carelessness on the mine-foremen, and fire-bosses, as these men in view of their superior technical knowledge should have better discipline in their mines, and enforce such regulations as would be a protection to the lamps and also to the lives of all the men in the mines. The lives and property at stake are too valuable to run any unwarranted risks, and have as elsewhere "eternal vigilance is the price of safety as well as liberty." Not only to safety lamps does this old maxim apply, but to all other dangers incident to mining. Of the 12 persons killed during the year 8 met their deaths by taking unnecessary risks, and in not properly protecting themselves against the dangers of falls of roof and slate.

The "Daily Report Books," which are now required to be kept at all mines, are proving to be of great value to the Mine Inspector, as from them he can procure a daily record of the condition of each mine, on visiting it, which enables him to ascertain how far the mine is daily complying with the requirements of the law.

Accompanying this report are the usual statistical tables, together with a Copper-plate of the "Stanley Header" coal cutting machine, and a map of Lemont No. 2 mine, for publication in this report. All of which is respectfully submitted.

CHAS. CONNOR,
Inspector of Mines.

Uniontown, Pa., March 20, 1894.

Description of Mines in the Fifth Bituminous Inspection District.

Atlas.—This mine is located near Dunbar, and is operated by Martin Meagher, under lease from the Cambria Iron Company. It only worked 159½ days during the year. Advantage was taken of the idle time to make improvements on the outside by building a new coal bin and chute, also a new Larry trestle; a new railroad siding was likewise put down.

This mine is ventilated from the Mahoning mine adjoining, where a new iron 25 foot "Guibal" fan has been erected. The air-current is conducted from the fan in a separate split and is carried around the mine and escapes by the slope and manway.

This manway was formerly the inlet to the mine and carried in the air-current (all around the workings) the products of a mine fire lying adjacent to it. By the new mode of ventilation these noxious gases are carried outside, without coming in contact with the workmen. The mine is generally in good condition so far as relates to ventilation and drainage. Mining boss, Charles R. Trew.

Anchor.—Operated by the Atchison Coke Co., has been idle during a portion of the year. The mine is now being rapidly exhausted, all the coal being mined is procured from ribs and entry stumps. Large volumes of black-damp is given off from the old "Gob" workings, which is being diluted as far as practicable by mixing it with fresh air. It is being looked after carefully, and all that is possible to do under the circumstances is being done by the management. Mining boss and superintendent, William Duncan.

Berlin.—Operated by John O. Stoner, is located on the Berlin branch of the B. & O. railroad, near Berlin, Somerset county. This is a small mine, often not employing enough men to bring it under the law. The drainage is good, and the ventilation fair. It could be improved, however, by keeping the stoppings closer up to the face of the entry. Ventilation is produced by a small furnace. A new opening will be made in the future, which will shorten the haulage and also the distance the air will have to travel. When this is done the mine will be in good condition. Mining boss, Conrad Baker.

Casselman.—Operated by the Casselman Coal Co. Drainage in this mine is not very satisfactory, the drains are allowed to fill up with debris from the roof and sides of the hauling road, consequently the middle of the track is where the water runs, making both uncomfortable and expensive haulage, and bad traveling for workmen to and from their work. The mine boss promised to have it remedied.

There was only one means of escape from the mine; the inlet opening being a shaft, but not being provided with a stairway. I gave orders to have a stairway put in at once, which I was assured would be done. The ventilation was good, with a volume of 31,520 cubic feet per minute at outlet. Mining boss, Henry Naylor.

Cal. T. Hay.—This mine was idle all the year. It is owned and operated by Cal. T. Hay, Salisbury, Somerset county.

Cumberland Nos. 1 and 2.—Operated by the Cumberland and Summit Coal Co.

No. 2 mine has not been operated during the year. No. 1 mine is in a very unsatisfactory condition as to the ventilation. I measured the air and could only obtain a volume of 3,600 cubic feet per minute, a quantity entirely inadequate for the requirements of the mine. I notified the superintendent to have some artificial means of producing ventilation put in operation before my next visit, otherwise I would have to take steps to restrain him from operating the mine. The drainage was very good. Mine boss and superintendent, Fred. Rowe.

Clarissa.—Owned and operated by James Cochran Sons & Co. This is a drift opening and ventilated by natural means; but owing to the great difference between the levels of the openings, there is a good volume of air in circulation. On my last visit I measured an air cur-

rent of 21,120 cubic feet per minute. This mine is in good condition in all respects. Mining boss, James C. Moon.

Chester.—Operated by E. A. Humphries & Co. The ventilation in this mine is not sufficient. It is produced by exhaust steam and radiation from steam pipes. I found only 4,200 and 3,920 cubic feet per minute in circulation at two different points in the mine. Otherwise the mine was in excellent condition, and well looked after. Mining boss, George Armstrong.

Crossland.—This is a new mine opened out by the Atlas Coke Co. The mine had only been making coke 86 days during the latter part of the year. It is located near Hopwood, and is a slope opening. It is opened out on the double entry system. An additional drift has been made, which makes the mine self draining. At present it is ventilated by natural means, but it is the intention to sink an air shaft and put a fan on it for the purpose of ventilation. A plant of 100 coke ovens has also been built. The coal is hauled out of the slope by an engine. The mine wagons are run on to the ovens, and the coal charged into the ovens from the mine cars. The mine is in good condition and is well looked after. Mining boss, David Walters.

Edina.—This mine is operated by the Connellsville & Ursina Coal & Coke Co., but has not been in operation during the year, except for producing coal for domestic purposes, and only two men were employed, hence it does not come under the law. A new incline plane and coal bin were built during the year.

Elm Grove.—Located on a branch of the B. & O. railroad. Operated by W. T. Rainey. On my first visit the drainage and ventilation were imperfect, the former from allowing the drains to fill up with dirt, the latter from not having the stoppings in good condition to conduct the air up to working places. A volume of 39,000 cubic feet was put in the mine by the fan; but at near the face of workings this was reduced to 10,500 cubic feet. On subsequent visits I found these defects remedied and the mine in good condition both as to drainage and ventilation. Mining boss, Walter McDonald.

Fairchance.—Owned and operated by the Fairchance Furnace Co. Located on a short branch of the Southwest railroad. This mine on account of the thinness of the covering over the coal, is continually falling through to the surface, hence it is impossible to have any regular system of ventilation; but the men employed in the mine do not suffer on account of lack of air, as each man can have an air shaft of his own, and a separate split for himself, by making a hole through to the surface whenever he desires it, as the distance to the surface as a rule does not exceed from 12 to 15 feet. The drainage, however, is bad on account of so much surface water, and also by reason of the very soft bottom which is a soft fire-clay. A new slope has been started which will go into thicker roof measures, and as the old work is fast becom-

ing exhausted, a better condition of things is looked forward to in the future. Mining boss, John W. Stirling.

Ferguson.—Operated by the Dunbar Furnace Co., and located near Dunbar. This mine has not been in operation for the greater part of the year. Condition of mine fairly good as to drainage and ventilation. I found on my visit to this mine some rooms turned ahead of the air current which I stopped at once. A new 16 foot fan has been placed at this mine for the ventilating of the Hill Farm mine, which is adjacent to it, and belongs to the same company. This makes two fans at this mine. The object of putting the Hill Farm fan at this mine is to carry off the noxious gases from the mine fire at Hill Farm so that they will go out of the mine instead of being taken into it, as was the case with the former method of ventilation. Mining boss, John Noon.

Fair View & Flog Hill.—Operated by the Fair View Coal Co. These mines although shipping their coal from two openings, are connected inside in such a manner that they may be considered as one mine, having the same ventilating current and under the direction of the same mining boss. I found the drainage fair but the ventilation was not carried around the working places in sufficient volume to carry off the powder smoke. This mine is a good example of the inefficiency of natural ventilation to produce good sanitary results in a mine. Here large quantities of gunpowder are used in blasting the coal, and consequently large volumes of powder smoke are produced. This smoke is carried along some distance by the air-current, when suddenly the air-current is reversed, and the smoke is carried back over the men again, and thus it is driven back and forth until finally the men have consumed it all by breathing it. Some artificial means of producing ventilation is needed very much in this mine. Mining boss, Archie Cochrane.

Grindstone.—Operated by the Redstone Oil, Coal & Coke Co. This mine was in operation only for a short period at the beginning of the year. I made one visit on June 10th and measured a volume of 76,400 cubic feet of air at inlet and 77,360 cubic feet at outlet, while at face of the 9th butt entry, I had a volume of only 10,290 cubic feet, thus showing a leakage of over six-sevenths of the entire volume before it reached that point. This mine generates large quantities of fire-damp, but up to the time of stoppage (which was shortly after my visit), it was worked in all its parts with open lights. On the resumption of operations this will not be permitted, as I shall require the mine to be worked exclusively with locked safety lamps. An electric mining machine is also used in this mine, and as under the law, all electric wires and currents are prohibited where locked safety lamps are used, this machine will have to be operated by some power other than electricity. The mine is in fairly good condition as to drainage. Shelter-holes are required on main hauling entry. The mine is located on the

Redstone Branch of the P. V. & C. railroad at Grindstone station. Mining boss, Thomas Bertoft.

Great Bluff.—Owned and operated by E. A. Humphries & Co. A drift opening located near Dunbar. The workings are connected on all sides by the “gob” workings of the Anchor and Uniondale mines, from which large volumes of black damp escape into the air current making it very difficult to have pure ventilation. The operation is so small, and the mine is so nearly exhausted, that any great expense would not be warranted to secure more satisfactory results. Mining boss, Alexander McCanch.

Grassy Run.—Located on Salisbury Branch of B. & O. railroad, Somerset county. Owned and operated by the Grassy Run Coal Co. Mine is in very fair condition as to drainage and ventilation. I measured the air-current passing through the mine and found a volume of 12,000 cubic feet per minute, which was abundant for the 31 men employed in the mine. The air was well distributed around the mine. Ventilation is produced by natural means. Mining boss & superintendent, John Meagher.

Hill Farm.—Operated by the Dunbar Furnace Co., and located near Dunbar. This mine is still worked on the single entry system. On my first visit I found quite a number of rooms being worked ahead of the air-current in violation of law. I ordered the miners who were working in such rooms to cease working therein at once, and cautioned the mine foreman not to allow men to work in these rooms until the air-current was brought up to them. The drainage was bad in parts of the mine, but the ventilation was good if it had only been conducted up to the workmen by proper methods. The volume of air measured at inlet was 64,400 cubic feet, but the single entry system of working, this volume practically never reached the majority of the men at work, but was returned to the outlet unused.

The mine fire on both sides of the slope (which was ignited at the time of the unfortunate accident on June 16, 1890), is still burning, but is confined to the upper portions of the mine, and is cut off from the rest of the mine by brick stoppings through which is inserted water pipes connected with the pumps outside. Water is conveyed through these pipes into the burning parts of the old workings, and thus the fire is kept under control. A man is employed to look after the fire and to attend to those water pipes. As would naturally be expected noxious gases are given off by this fire, which at one time were carried into the mine, and mixed with air-current which polluted it to such an extent, that it was injurious to the health of the workmen employed in the mine. To remedy this evil, a blowing fan was placed at the Ferguson mine and the air made to travel up the manway and slope of the Hill Farm mine; and now the smoke &c of the mine fire are carried outside, instead of into the mine as formerly. This

has improved the sanitary condition of the mine very materially. This mine was idle a considerable portion of the year, owing to the depressed condition of the coke trade. During the time it was idle some portions of the mine suffered from the effects of a squeeze which somewhat crippled operations when the mine started up again. Mining boss, Matthew Heron.

Hamilton.—This mine employs only eight persons and is not under the provisions of the law. It is nearly exhausted and will be finished within a year.

Hocking.—Operated by Chapman, Hocking Coal Co. Located on Salisbury branch of B. & O. railroad, Somerset county. Here we have another example of the uncertainty of natural ventilation. While in the act of measuring the air-current the anemometer registered 200 feet velocity in a half minute going out of the mine, when it suddenly stopped, reversed, and registered the same velocity entering the mine the next half minute. Large quantities of gunpowder are used to blast the coal in this mine (as the coal is mostly blasted off the solid without undermining it), and therefore large volumes of air are required to keep the mine atmosphere free from powder smoke, and to secure this result, some permanent and effective mode of producing ventilation is required at this mine. The drainage and other conditions of the mine were good. Mining boss, R. A. Winter.

Hurst.—Located on the Redstone Branch of the P. V. & C. railroad near Smock station. This is a new mine, opened up during the year—a slope opening dipping about 10 degrees for a distance of about 200 feet through the rock, where it strikes the Pittsburgh vein of coal, which at this mine is about 9 feet thick and of good quality. From the mouth of the slope a trestle is erected across the Redstone creek to the railroad where good substantial chutes are placed over the side tracks of railroad for the purpose of screening and preparing the coal for market. An engine and boiler are fitted up near chutes for the purpose of hauling the coal out of the slope. Ventilation is produced by means of heat from the steam pipes in the slope which convey steam to the pumps in the vein. The second opening is a shaft upon which a fan will be placed. The mine is opened on the double entry system, but the ventilation is not carried up to and around the working places sufficiently, through lack of the necessary doors and stoppings. The volume of air was too weak, viz: 7,500 cubic feet per minute. The superintendent promised to increase the volume in the near future. Mining boss, Jacob Houser.

Juniata.—Operated by the Juniata Coke Co., and located on a branch of the B. & O. railroad. This mine is in excellent condition and is well managed and looked after. On my first visit I found one of the splits of air in the mine being worked with open lights. I suggested to the superintendent that it would be much safer to use

safety-lamps, my suggestion was acted upon, and safety-lamps were ordered to be furnished. The volume of air measured in circulation was 96,000 cubic feet per minute, which is well distributed around the working places. All stoppings between main intake and return air-ways have been built of substantial masonry laid in cement. There is an evident desire on the part of the management to comply with the requirements of the law in every particular. A gravity plane has been constructed inside the mine by which the loaded cars haul the empties for a distance of 3,000 feet. Advantage is taken of the parallel headings for this purpose. Three wheels are placed between the two headings and the loads and empties are alternately run over each heading. A saving of quite a number of mules and drivers is the result of this arrangement. Improvements outside the mine are one coal crusher and engine, and two new boilers. Mining boss, John D. Hayden.

Keystone.—Idle all the year.

Langhead.—Owned and operated by the Martin Coke Co. A new slope has been opened in this mine and driven to the lower boundary of the property. The coal is worked backwards from the inside, leaving all the gob behind, thus cleaning out and recovering the entire coal seam nearly. The coal is hauled out by an engine and care dropped by gravity on the ovens which are charged directly from the cars. The ventilation, which is ample and well distributed, is produced by a fan placed over the manway. Volume, 30,880 cubic feet. This mine is in excellent condition in every respect and reflects great credit on the officials in charge. Mining boss, J. W. Rechard.

Lemont No. 1.—Operated by the McClure Coke Co. This mine is in good condition generally. The volume of air is abundant and well distributed around the workings. I measured at outlet near fan a volume of 150,000 cubic feet per minute. A bore-hole 14 inches in diameter and 340 feet deep has been put down for the purpose of pumping water through it from the mine, and doing away with a discharge line of pipes on the main slope. The hole has been cased and cemented through its entire depth. Mining boss, Frank Clark.

Lemont No. 2.—This mine is also operated by the McClure Coke Co. This is a well laid off mine both outside and inside, and well equipped with powerful machinery for hauling and ventilating purposes, and reflects great credit upon Mr. J. P. K. Miller, mining engineer, for the McClure Coke Co., who designed the plant and machinery, and laid out the plan of the mine. It is ventilated by split air-currents and over-casts. The volume is abundant and well carried up to the working places. The haulage roads and drainage are in excellent condition. A map of this mine and a description written by Mr. J. P. K. Miller, chief engineer, are inserted as a part of this report.

Description of Workings, McClure Coke Co's Lemont No. 2 mine
located in Fayette Co., Penn'a.

Main and Branch Haulage Ways: In the main, the middle entry is set apart for a haulage way; one for a man-way, and the other for an air-course. In the flats, or branch haulage ways, A. B. C., etc., we have the two lower entries set apart for haulage roads; one for loaded and the other for empty mine cars. And the other, or third entry is used for an air-course to convey air to the butt, or room entries, Nos. 1, 2, 3, etc. The advantage gained by the three entry systems are as follows: First, the third entry being set apart almost exclusively for an air-course, it being only used as a traveling way at the entrance to each flat, furnishes a clear compartment for the air to enter the mines unobstructed by the trips of pit cars, etc., which are constantly going and returning on the haulage, which we generally have to contend with when two entries only are used. Second: The third entry being added makes it possible to make any number of air splits that it is practicable to make on each flat, without obstructing the hauling road with doors. Third: By this system we can have the air traveling at a very high velocity in the inlet to the workings and returning at an ordinary velocity through the two hauling entries, or outlets, which is quite an advantage to the haulers and others, for air traveling at a high velocity in the haulage entries makes it quite difficult to keep the lamp lights from being extinguished. The advantage of the three entry system for the main haulage ways are about the same as those mentioned above, for the branch haulage ways.

Butt: Or room entries: The blocks of coal lying between the flats A. B. C., etc., are developed by the double entry system. Under this plan no face entries or air courses are driven in the block of coal as is usually done in the single entry system, two butt entries instead of one being parallel with each other 50 feet between centres, leaving a solid pillar of coal between them except the small space occupied by brake-throughs, and turning rooms off on but one side of the entry. About the same amount of entry driving is required under each of these methods, while 20 to 25 per cent. less entry stumps are required under the double entry system. Better results in ventilation are acquired under the double entry system, as the air can be kept constantly circulating to the face of the entry by means of break-throughs between the parallel entries. It is possible to take out all the entry stumps or pillars under the double entry system, while under the single entry system from 30 to 40 per cent. of the stumps are lost.

Rooms, or working places: Rooms are turned off of the butt entries generally 90 degrees right or left, and 27 to 32 feet between centres. They are worked in for the first 25 to 30 feet, $7\frac{1}{2}$ feet wide. They are then widened out to a width of 12 feet, leaving a pillar of

SITUATED IN
NORTH UNION TOWNSHIP
FAYETTE COUNTY PENNA

OWNED AND OPERATED
BY
MC CLURE COKE CO
JAN'y 1894 J. P. K. MILLER, MNGR



coal called a rib, 15 to 20 feet thick. Brake-throughs are made in the ribs about every 90 feet. The pit wagon track is laid up the side of the room from the opening of the entry, a row of posts with caps set about the centre of the room parallel with the track, and from four to six feet apart. The track laid up the room is made of wooden rails 3 x 4 inches, the road in the mouth of the room however, and the turn off in the entry, are made of 16 and 20 pound T rail.

Haulage road and equipment: The haulage road is laid of 35 pound steel T rails, and cross ties 6 inch face by 5 feet 6 inches long, gauge of track 40 inches. The pit cars used are of 40 bushels capacity. One pair of first motion haulage engines 24 inch cylinder, 48 inch stroke are used for drawing the cars from the mines. The empty trips of cars travel by gravity into the mine. Fifteen hundred tons of coal can be hauled daily over the North and South haulage.

Drainage: About all the mine water is conveyed by gravity drains to a large sump near the terminus of the North haulage, and then displaced by a steam pump 10 inch water cylinder, 24 inch steam cylinder, and 30-inch stroke. The discharge line of the pump is connected with a ten-inch drill hole made through the strata from surface of ground to pump room. The pump is supplied with steam by a battery of boilers located in close proximity to the discharge bore hole, and steam is conveyed through the pipes hanging in a drill hole of smaller diameter. The portion of the mines lying below the gravity line leading to the main sump is kept dry by two small pumps 7 inches by 12 inches by 12 inches.

Lynn.—Operated by Hanna Brothers, and located on Redstone Branch of P. V. & C. railroad. This is a small mine employing on an average about 17 persons. Ventilation by natural means, but gives very unsatisfactory results. A new opening has been sunk, where a furnace will be placed, and a stack 50 feet high will be built on top of shaft. When these improvements are completed better results are expected. The drainage is good. The hauling roads have all been relaid with new 15 pound steel rails which has improved the condition of the road very materially. Twenty new mine wagons have been built during the year. Mining boss and superintendent, James Harding.

Morrell.—Operated by Martin Meagher (Lessees, under the Cambria Iron Co. This mine is ventilated by two Murph fans, each fan forces the air down manways on each side of, and parallel to main slope; thus the workings on each side of slope are ventilated by separate air-currents which unite at bottom of main slope and are returned by it to the surface. I found that the air was not conducted up in sufficient volume to the inner headings on account of the great amount of leakage through canvas doors on the bottom of the outer headings. I sug-

gested that wooden doors or air-crossings would prevent this leakage and give more air at the further part of the mine; but so far nothing has been done. Drainage is defective in some portions of the mine. A bore-hole was put down during the year at the bottom of the slope and a new pump put in to pump the water from the mine. Additional boilers to run this pump were erected on the surface from which the steam was conducted by pipes through another bore-hole. Two new coal bins were also erected outside. Mining boss, John Yocum.

Mahoning.—Also operated by Martin Meagher (Lessee). This mine did not run more than half time during the year. A new 25 foot Guibal fan has been erected for the purpose of ventilating this and the Atlas mine adjoining—both mines being operated by the same person. This mine is in good condition generally. I found some gas in the gob on the right of the slope, where ribs were being drawn, but it was being carefully looked after. The air-current when leaving this part of the mine is conducted into the return airway and out of the mine, without coming in contact with any other working places. Mining boss, David P. Brown.

Mt. Braddock.—Operated by W. J. Rainey. This mine had in former years been worked on the principle of getting the coal where it could be gotten the handiest, and the result is, it is so badly cut up that it is both difficult and expensive to get it restored to any system of working or ventilation. Its present owners however are pushing the new work ahead and getting the old into as good a condition as possible. A new 20 foot fan has been erected and the ventilation is good; but owing to the manner in which the mine is cut up—literally standing on stilts—the best results from the fan are not obtained. It would require a masonry wall built the whole length of the slope—between the main intake and return airways—to secure freedom from leakage, and obtain satisfactory results. The drainage is good and every effort is being made to comply with the requirements of the law. Mining boss, J. M. Franklin.

Nellie.—Operated by Brown & Cochran, and located on the Dickson Run branch of the P. McK. & Y. railroad. This mine is in good condition both as to the drainage and ventilation, but while there is a sufficient volume of air going into each of the splits to conform to the law, yet the distribution could be better equalized. I also found that the aggregate volume of all the splits did not equal more than half the volume delivered into the mine by the fan, thus showing that more than one half of the air was lost by leakage. Careful attention to stoppings and doors would remedy this, and give better results. Mining boss, George Dawson.

Oliver Nos. 1 and 2.—Operated by the Oliver Coke and Furnace Co. Located at the Junction of the Redstone Branch of the P. V. & C. rail-

road, and the Southwest Branch of the P. R. R., near Uniontown. These mines have been rapidly developed during the year the object being to get to the boundary lines of their property as quickly as possible to enable them to operate on the retreating method of working, as far as possible. The ventilation and drainage are good and the mine generally is in good condition. An endless rope system of haulage will be introduced into the mine in the near future. This mine produces large quantities of fire-damp especially in pillar workings, and consequently large volumes of gas were always to be found in the gob where the ribs were drawn, even when large volumes of air were directed against it to drive it out. To obviate the danger of having large quantities of standing gas in the mine, Mr. Fred. C. Keighley, superintendent, put down an experimental bore-hole from the surface over the centre of the worked out and fallen part of the gob, for the purpose of draining off the gas. The experiment proved successful in all respects and so completely drained the gas from that portion of the mine that there has never been any found there since. The area of gob workings from which the gas was drained was about ten acres. The contract price of bore-hole was one dollar per foot. The size of the hole was six inches diameter, and was 250 feet deep to where it struck through on to top of fall.

This bore-hole has demonstrated two very important facts: first, That gas in old gob workings can be drained off by bore-holes from the surface; second, That there is no necessity for having standing gas in old gob workings in mines as a standing menace to the safety of the persons employed therein. Operators of coal mines, therefore, can have no excuse for allowing large and dangerous accumulations of explosive gases to exist in their mines. Mining boss, Chauncy B. Ross.

Percy.—Operated by the Percy Mining Company, and located at Percy station of the Fayette County Branch of the B. & O. railroad. This mine has not been in operation since June 6, 1893. The mine is generally in good condition when in operation.

Paul.—Operated by W. J. Rainey, and located on the Dickinson Run Branch of the P. McK. & Y. railroad near Vanderbilt. This mine is in good condition in every respect, having abundance of ventilation which is well distributed through the mine. It is the aim of the operators to push the main slope to the boundary line and work back, hence no more room work is being opened up in the forward workings than will give places enough to supply the present demand for coal for the ovens. The mine is in good, careful hands and is well looked after. Mining boss, David Young.

Pine Hill.—This is a small mine operated chiefly to produce coal for local consumption for the town of Berlin, Somerset county, near which town the mine is situated. The mine seldom ever employs

enough men to bring it under the provisions of the law, except for a few months in winter time. Mining boss, H. S. Coleman.

Stewart.—Operated by the Stewart Iron Company (Limited). Located near Uniontown. The fan at this mine has been arranged in such a manner that the air current can be reversed in a few minutes, without changing the direction of motion or stopping the fan. This mine is well looked after and is in good condition in every respect. Mining boss, I. G. Roby.

Snider.—Operated by Edward Snider, and located on the National Pike about one mile west of Uniontown. The coal produced is used for domestic purposes in Uniontown. The drainage of the mine was fair but the ventilation was insufficient as natural means were depended upon for the supply of air. The airways were allowed to fall in, making it impossible for the air to travel through them. A new outlet was ordered for ventilating purposes. Mining boss, Robert Wilson.

Smock.—Owned and operated by the J. D. Boyd Coal Co., and located on the Redstone Branch of the P. V. & C. railroad at Smock station. This mine is in very good condition as to drainage and general safety. The ventilation—while within the limits of the law—could be very greatly improved by putting a fan up at mouth of lower level for forcing air into the mine and allowing it to escape at present furnace shaft or back pit-mouth, or both. The present furnace is too small to give satisfactory results; and as the workings extend, the results will be more and more unsatisfactory unless more power is applied to produce ventilation. Mining boss, Ben. Holliday.

Statler & Standard.—Operated by E. Statler & Co., and located on Grassy Run on the Salisbury branch of the B. & O. railroad. The ventilation, like all the other mines in the Salisbury district, is produced by natural means and is very unsatisfactory and unreliable. The drainage and other conditions are fairly good. Mining boss, Orlando Flesher.

Shaws.—Operated by the Cumberland and Elk Lick Coal Co., and located near Meyersdale, on the Salisbury Branch of the B. & O. railroad. This is the largest and most extended mine in Somerset county. The workings are well laid off in the newer parts of the mine but owing to the great length of airways the furnace is too small to give sufficient air for the requirements of the mine. Preparations are being made for erecting a fan which no doubt will remedy this defect. A system of rope haulage is also likely to be put in operation in the near future. When these improvements are completed the mine will be in good condition. Mining boss, James Philips.

Shaw's Grassy Run.—Operated by the same company as the preceding mine. This mine is nearly exhausted and will be abandoned

during the year as soon as all the pillars are worked out. Mining boss, William K. Murray.

Tub Mill Run.—Located on the Salisbury Branch of the B. & O. railroad and operated by the Fair View Coal Co. The mine is in good condition as to drainage. The ventilation was within the law at the time of my last visit, when I measured a volume of 14,000 cubic feet per minute at outlet; but this quantity was not by any means going around the working places. Like all other places where natural ventilation is depended upon, for putting air into the mine, it is very uncertain and irregular, both as to quantity and direction of air current. Artificial means of ventilation will have to be used in the future, to fulfil the requirements of the law, which comes into operation after May 30, 1894. Mining boss, John Rees.

Thomas.—Operated by Benj. Thomas and located near Meyersdale. The condition of this mine is good in all respects, except that there is no artificial means to produce ventilation. Mining boss and superintendent, Benj. Thomas.

Uniondale.—Operated by Reid Bros. and located near Dunbar. This mine is fast becoming exhausted; all the solid coal is mined out, and the operations of the mine is now confined to pillar and stump drawing. Being surrounded by old gob workings on all sides, black-damp is given off freely, which mixes with the air-current; but as a strong volume of fresh air is delivered into the mine by the fan, the deleterious effects of the black-damp are neutralized to a great extent and the mine atmosphere is comparatively good. This mine has worked very little during the year. Mining boss, James L. Allen.

Wheeler.—Operated by Martin Meagher (Lessee), for the Cambria Iron Co., and located near Connellsville. This mine is in fair condition. A flat entry has been driven through to the Morrell mine adjoining, for the purpose of drainage, which will do away with a long line of discharge pipe, also a large pump. Ventilation good and fairly well distributed around working places. Mining boss, Frank Deary.

Washington.—Operated by the Washington Coal & Coke Co., and located in Perry township, Fayette county, on a branch of the P. McK. & Y. railroad. This is a new shaft opened out during the year, on the Pittsburgh coal seams. Two shafts have been sunk—one for hoisting the coal—the other for an air shaft. A drift opening is also being driven into the shaft workings, which will be used for a traveling way, and for the purpose of taking supplies into the mine. The hoisting shaft equipments are of a strong durable, and substantial character, consisting of a pair of horizontal engines, two nests of tubular boilers, machine shop, etc., all enclosed in a substantial brick building, divided into three compartments. The cages are self-dumping, and the coal is delivered from the mine car on the cage into the chutes, where

it is weighed, screened, and prepared for market, and delivered into the railroad cars. It is estimated that about 2,000 tons of coal per day can be handled with about 3 or 4 men. On the air shaft is erected a 25 foot Guibal fan, which is so arranged that by the closing and opening of a door and shutter the air can be either exhausted from or forced into the mine. The mine is well laid off with three main headings on each side of the hoisting shaft, two of which are to be used as loaded and empty hauling roads, the other for a return airway. From these main headings, butt, or cross entries are turned off in pairs, from which the rooms will be worked. Each pair of entries to be supplied with a separate air split which will be conveyed into main return airway by overcasts, and the quantity of air in each, distributed by regulators. When the improvements are completed at these works, they will compare favorably with any mine in the district. The company is sparing no expense to have everything constructed in a substantial and efficient manner to enable them to produce coal cheaply and to handle it quickly. The air-shaft being at the dip of the present workings, it will also be used as a pumping shaft. The mine pumps are located at the bottom of it. Steam to run them is supplied from the boilers on the surface. The mine is being well looked after and taken care of by the officials in charge. Mining boss, George W. Santimeyer.

MINES OF THE H. C. FRICK COKE COMPANY.

Kyle.—Located near Fairchance. This mine worked only 117 days during the year, and was shut down before I had an opportunity of visiting it.

Leith.—The following description of this mine with its improvements, has been kindly furnished at my request by Mr. J. H. Paddock, chief engineer for the H. C. Frick Coke Co.:

The Leith Mine, the subject of this brief description, is located in Fayette county, about one mile south of Uniontown, and is owned by the H. C. Frick Coke Company. The product of the mine has an outlet to the market by the Baltimore & Ohio and the Pennsylvania railroads. There are 300 ovens at this plant, making a daily shipment of about 40 cars of coke. During the summer of 1893 this whole plant was remodeled and rebuilt. The desire in rebuilding being to erect a neat and substantial operation, capable of doing the required work in good shape, but with no attempt at anything elaborate, or for appearances only. The distinctive feature in the new structure is in the extended use of steel, which has been carried farther at Leith than at any other coke plant in the Connellsville region. The shaft bottom, in place of arching or timbering, has been protected by steel I beams, supported on brick piers. The Head-frame and coal bin are also of

steel, as likewise are the trestle approaches leading to the ovens. The tendency is to use steel more and more in these structures, and with the present low prices of steel, it seems really foolish to erect structures of wood which are desired for permanent work. The first cost is very little in excess of wood, and when the advantages of solidity, permanency, freedom from repairs, decreased fire insurance, and a greater value after the structure is worn out than is represented by wood, the steel is undoubtedly the most economical. Rotten wood is valueless—scrap steel may be worth $\frac{1}{2}$ to $\frac{3}{4}$ cents per pound.

Further developments with this Company (as with others) will undoubtedly tend to further extend the use of steel to shafts, so that both inside and outside the mine, the use of wood will be for temporary purposes only. The total weight of steel used in this structure (exclusive of that which was used in the shape of I beams at the Shaft bottom), was 234,431 pounds. In rebuilding the works, the Head Frame and Engine House were reversed, the original main brace having had too small an angle of inclination for stability, which was unavoidable on account of the railroad track interfering. Placing the hoisting engine on the reverse side, remedied this in a manner, but not entirely, as another track interfered. The engines are first-motion; the cages self-dumping. The plant is lighted by electricity throughout, including the shaft bottom underground haulage and pump house; also surface buildings, office and store.

Both the hoisting and air shafts were retimbered and made dry, and while the work was well done and the results entirely satisfactory, it is a question whether the day for using timber in shafts at all has not about passed, and whether they should not be constructed in masonry or iron.

The fan (a 25-foot Guibal), was made reversible, having been previous to this time used as a forcing fan only.

The new hoisting engines (24 x 48 first-motion engines), were built by Kenney & Company, of Scottdale.

All the iron work for head frame, bins, trestles, etc., was furnished and erected by Riter & Conley, of Pittsburgh.

The whole plant is looked upon as being a satisfactory one, both as to appearance as well as to requirements, and would repay a visit by any person interested in coal and coke works.

I fully endorse all that Mr. Paddock has said, and I consider the Leith plant the model one of my district, in equipment, ventilation, drainage, etc.

Leisenring No. 1.—This mine is very extensively opened, and the workings are a great distance from the shaft; but despite the long distance which the air travels, and the extended area over which it is distributed, the working places are well ventilated. On my last visit I

found a united volume of 200,400 cubic feet of air at the outlet shaft from the various splits in the mine. A new compressor house and compressor, with new boilers and boiler house—both houses being built of brick—have been erected during the year; also a new steel reversible fan. The air-shaft has been repaired and improved, and the underground stables remodeled and made fire proof as required by law. The pump house in the mine has been arched with brick and enlarged. Drainage of the mine is accomplished by means of compressed air pumps, as natural drainage is impossible on account of the numerous local swamps or dips; but with all these disadvantages the mine is well drained and the roads kept in good condition. Haulage is done by a tail rope system from a side track where the mules collect the coal from the various entries and working places. Mining boss, George Roebuck.

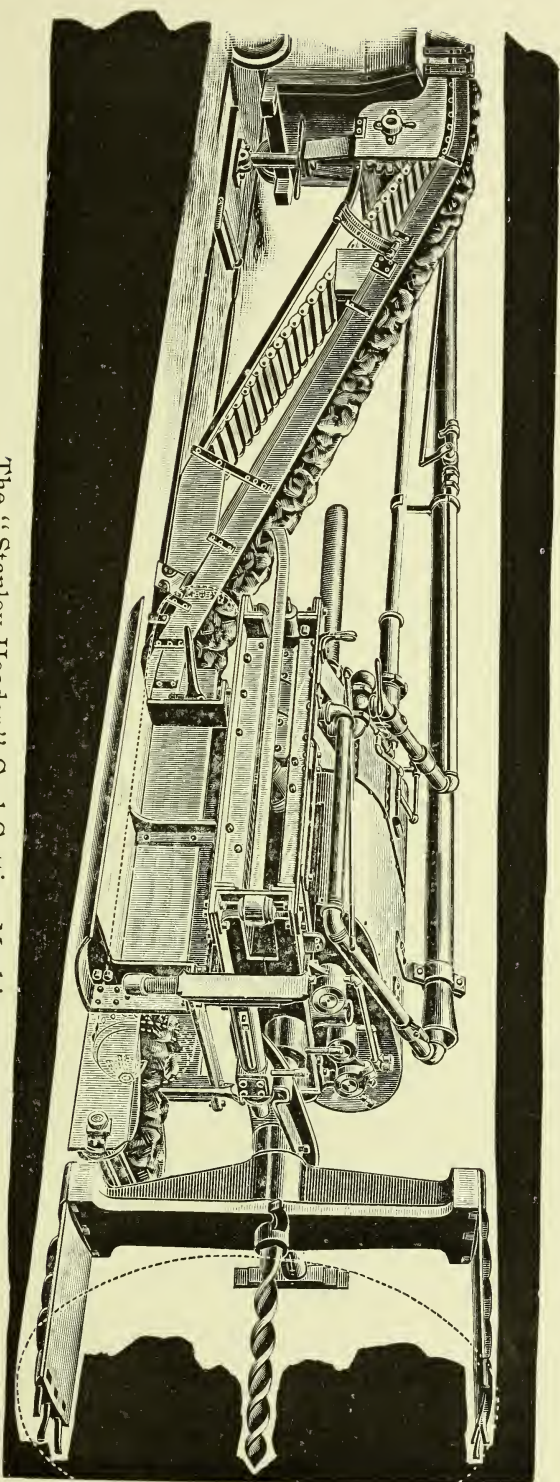
Leisenring No. 2.—Located near Bute station on the Redstone Branch of the P. V. & C. railroad. The workings of this mine are very extensive. On my first visit found that air was not conducted up to the working places as well as it should have been. This was due to leakages through stoppings and doors. I suggested that these leakages be closed, or that the air be taken from another split and its direction reversed, so that the working places would receive the first of the air, and both the former intake and return thus become the return airways. The latter plan was adopted and the results were very satisfactory.

A portion of this mine had been overrun by a squeeze some years ago. Efforts have been made lately to recover some of the coal, and entries were driven through the old room pillars and entry stumps and considerable of the lost coal in the room and entry pillars was recovered. But a new difficulty arose in the accumulation of large quantities of explosive gas in the gob where the pillars were being drawn, and not having a proper return airway to remove this gas, pipes were laid up to the top of the entry and air forced through them at a high pressure from the compressor, which kept it in comparatively safe condition until the entry was worked back to the return airway.

The stables in the mine were all made fire-proof as required by law. A large new stable was also built outside the mine.

On account of the great extent of workings to be ventilated, it was desired to shorten the distance which the air had to travel, and to do this it was necessary that an opening should be made on the outcrop of the coal seam. This involved the driving of a pair of headings—which would be of great length—to reach the desired point. Under ordinary methods of digging the coal, this would take considerable time to accomplish. To expedite matters, arrangements were made with the Sullivan Machine Company to put into the mine one of

The "Stanley Header" Coal Cutting Machine.



their "Stanley Headers," a machine which digs and loads the coal into the mine wagons. This machine makes a circular entry seven feet in diameter, and during two weeks' trial—with green men working it—it drove an average distance of 25 feet per day. The machine company agreed to drive the entry and load the coal for the same price as had been paid to the miners for doing that work. The machine is at work at the present writing and doing good and rapid work. A cut of this machine and a more detailed description of it, is sent for publication in connection with, and to be made a part of the description of this mine. Mining boss, Walter O. Malley.

THE IMPROVED STANLEY HEADER.

An Important Invention for driving Headings, or Gangways, in Coal Mines.

The rapid development of a new coal property is one of the puzzling questions that the superintendent or mining engineer has to meet. The equipment of the modern coal mine is becoming more and more expensive as the margin of profit decreases, owing to increased competition, and the earning capacity of the plant has come to depend on large output and small economies, necessitating improved machinery and labor saving devices. American capital is always impatient for quick returns and instead of being able to take things easily and open out the works fully as they do in England and on the Continent, before thinking much about the earnings, the American engineer has to begin to figure on making some showing of earnings at the start, so that anything that helps to push the entries of the mine forward rapidly, giving space for room turning and the employment of men, is a step in the right direction.

The old method of driving entry by hand was necessarily slow; but two men could work at a time in any one face, and a rate of from four to six feet of advance per shift was considered big work. The advent of undercutting machinery helped entry driving materially; a cut could be put in rapidly and the machine then be loaded on a car and moved to another entry when it would make a cut while the first one made was being loaded out. Still this method left a good deal to be desired. It gave double the rate of advance made by hand labor, but it was impossible to push any particular entry or entries rapidly, as all advance necessarily stopped while the coal was being shot and loaded out, and time was lost moving from place to place.

The Stanley machine was designed to accomplish the rapid driving of entries. It is never moved from the entry until it has been driven as far as the conditions of the mine require, and in this way the entire work is concentrated where it is most needed and rapid development is secured. The machine is driven by a pair of engines that furnish

the power for cutting the coal, loading it in the pit cars and then after the cut is loaded out, the engines move the machine forward. The coal is carried under the machine by the conveyor and deposited in the mine car. In this way no time is lost and the daily rate of progress is greatly increased, runs of from thirty to forty feet in ten hours being frequently made. The Stanley machine is operated by three men, who leave the entry completed as they go, laying the track, squaring up the sides and loading the coal.

Entry coal is no longer a drawback when mined with the Stanley machine as it is as large as room coal; the roof is left arched, reducing the amount of timber necessary and the smooth rib gives greatly improved ventilation. Another important point is the decrease in the number of break-throughs. Where two Stanley machines are run side by side a break-through every five hundred feet is ample. This makes a decided saving in the amount of narrow work, and also helps the ventilation of the mine, as no matter how carefully a break-through may be "stopped," unless a good deal of expense is incurred, more or less air will leak through and those leaks in the aggregate, amount to a decided loss of air and consequent deterioration of the mine ventilation.

The cost of entry driving is reduced to a minimum by this machine. In a six foot entry, each lineal foot gives a ton of run of mine coal. Taking twenty-four feet of completed work per ten-hour shift, as a basis, this gives twenty-four tons of coal loaded in the pit car ready for the driver, and eight wards of completed entry, with the employment of only three men, but one of whom need be a machine runner. If a wider opening be needed, the side of the entry can be widened by "slabbing" at a cost not exceeding the rate paid for mining coal in the rooms.

In August, 1893, Mr. James S. Dixon, a well known mine superintendent in Scotland, read a paper on the Stanley machine before the Mining Institute of Scotland, giving some particulars of its workings at the Hamilton Palace colliery where he had introduced it in the year 1888; in fact—there are two of these machines at this mine, operated by compressed air. Mr. Dixon says the machine consists of a frame carried on two wheels set tandemwise, one in advance of the other. This frame carries an engine with two cylinders, and the engine shaft is geared to the principal cutting-shaft, which passes through the centre of the frame. On the end of the principal shaft a cross-head is fixed, carrying at right angles the two rams upon which the cutters are fastened. The object to be accomplished is, by the rotation of the cross-head and arms, to cut an annular groove in the face of the heading.

The machines adopted at Hamilton Palace colliery make a cutting 5 feet in diameter. The cylinders are each 9 inches in diameter by 9

inches stroke, geared to the central cutting shaft as 13 to 1. This shaft has a screw thread cut nearly its whole length, by which, and suitable gearing, the cutters are advanced. The arms project about 3 feet beyond the cross-head; and this length controls the extreme depth of each cut. The machine is anchored to the sides of the floor to maintain it in position, and to keep the cutters against the face. When a cut the length of the arms has been made and the coal removed, the cutting motion is put out of gear and the advancing motion put into gear, by which the whole machine is propelled forward to begin anew.

As the usual haulage roads at Hamilton Palace colliery are 11 feet wide, it was resolved to try two machines, one working immediately in front of the other. These are driven so as to leave between the drifts about 1 foot of coal, which is to some extent utilized as a bratticing for guiding the air, and is afterwards removed leaving the roof flat with the curved sides, which stand well. This manner of driving gives room for ventilation, loading, and removing the coal, and following up with pumps and pipes when necessary.

The heading machines have been at work since December, 1888, and during that time have cut about 3,000 yards of entries 11 feet wide in the all coal-seam, and about 800 yards in the splint seam about $6\frac{1}{2}$ feet in thickness, so there is ample room for the 5 ft. cut. In some parts, the coal-seam had blaes (shale) partings from 1 to 3 inches in thickness, but these and the harder nature of the splint coal-seam, and its accompanying cannel coal, made little or no difference in the work done by the machines. In some places, where small slips intervened, and either the roof or the pavement, which are strong fakes and hard fire-clay respectively, was encountered and cut through for short distances, it was done without difficulty.

Under favorable circumstances, such as breasts going to the rise, sufficient to allow of water flowing away, distances of a length of 650 feet have been driven without break-throughs. As the merits of any such machine can only be judged from the actual work done over a period of time, the following record was kept when a comparatively clean and continuous area of coal was being operated upon, with the following results, viz:

Periods of Two Weeks.	Number of shifts worked.	Distance cut five feet diameter.	Distance cut per shift.	Amount paid for cutting and filling.	Cost per lineal foot.
		<i>Feet.</i>	<i>Feet.</i>		
1, ...	23	283	12.30	\$170 34	\$0.6018
2, ...	23	270	11.74	159 30	0.5900
3, ...	24	276	11.50	149 88	0.5430
4, ...	18	212	11.77	112 36	0.4900
5, ...	19	230	12.10	100 32	0.4360
6, ...	23	284	12.34	119 88	0.4220

There was a reduction of wages during the last four weeks, hence the lessened cost.

The conclusion arrived at by Mr. Dixon from the work done by the Stanley Header is that it will drive an entry 11 feet wide four times faster than, and at half the cost of, hand labor.

Leisenring No. 3.—This is the deepest shaft in the Connellsville region, viz: 542 feet, to which may be added 35 feet to cage landing making a total distance of 577 feet which the coal has to be hoisted to deliver it into the bin. This mine is in good condition in all respects. The ventilation is divided into four splits and is well distributed throughout the mine. The united volume of the four splits at the bottom of the upcast shaft was 234,800 cubic feet per minute. This quantity is forced into the mine by a 25-foot Guibal fan. The method of working the coal is being changed as rapidly as possible from the former plan of commencing to turn off and work the rooms as the entries progress, to that of driving the entries up to the end of the sections, and working the rooms and pillars on the retreating system. This is the correct method, and will prevent the possibility of loosening coal by creeps or squeezes.

A new air compressor and compressor house, also a new lamp house, have been built during the year. The stables underground have all been remodeled to conform to the new mining law. A new stable above ground has also been built.

The mine was idle a considerable portion of the year, having only worked 146 days. Mining boss, John Garbutt.

Oliphant.—Located near Fairchance. This mine has been idle during the greater part of the year, having worked only 125 days. I found the mine in good condition generally with ample ventilation well conducted around the workings. The haulage roads and drainage were also good. A new blacksmith's shop, and 22 new coke ovens were built during the year. Mining boss, John Harris.

Redstone.—This mine is opened out by two slopes. The workings are all connected underground and ventilated by an exhaust fan over an air shaft through which the water is also pumped to the surface. The mine is in good condition both as to ventilation and drainage. Every effort is made to keep the mine in good condition. The man-way is whitewashed its entire length, which makes it clean and cheerful looking, and is a great aid to the men on entering the mine as they can see so much better to travel after leaving daylight. An addition to the boiler house at the air-shaft was built during the year, to hold two new boilers which were put in. Mining boss, Elijah Parker.

Trotter.—This shaft is located near Connellsville. I found this mine in good condition at each visit. Like the most of the H. C. Frick Co's mines the entries are being pushed to the end of sections before rooms are worked, with a view to recover the greater percentage of coal on the retreating system. The ventilation is abundant and carried well up to the working places. The underground stables have all been lined with brick laid in cement, thus making them fire proof. A new brick lamp house has also been built during the year. All requirements of the law are complied with, and even exceeded on the part of the mine officials. Mining boss, W. J. Callaghan.

Wynn.—Idle all the year, and has not been visited.

Youngstown.—This is a slope opening on the out crop of the coal. Located on the Southwest P. R. R., about 4 miles north of Uniontown. The mine only worked 142 days during the year. This mine is troubled with bad roof which necessitates the extensive use of timbers which makes it expensive to operate; but despite these unfavorable conditions, the mine is in very fair condition, and is well looked after, every care being exercised to prevent accidents, to comply with the law, and to have the mine in a healthful and safe condition. Mining boss, J. W. Grieves.

TABLE NO. 1.—Showing location, &c., of collieries in the Fifth B district.

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Postoffice Address.
Atlas.	Martin Meagher (Lessee).	Fayette,	A. L. Nelson.	Connellsville.
Anchor.	Atchison Coke Company.	do.	William Duncan.	Dunbar.
Berlin.	John O. Stoner.	Somerset.	Irtman Flots.	Berlin.
Buffalo.	Buffalo Coal and Coke Company.	do.	W. F. Childs.	Meyersdale.
Casselman.	Casselman Coal Company.	do.	William G. Hocking.	do.
Cal. T. Hay.	Cal. T. Hay.	do.	Cal. T. Hay.	Elk Lick.
Cumberland No. 1.	Cumberland and Summit Coal and Coke Co., do.	do.	Fred. Rowe.	Meyersdale.
do.	do.	do.	do.	do.
Clarissa.	James Cochran, Sons & Co.,	Fayette,	P. G. Cochran.	Vanderbilt.
Chester.	E. A. Humphries & Co.,	do.	E. J. Humphries.	Vance Mill Junction.
Crossland.	Atlas Coke Company.	do.	James Henderson.	Uniontown.
Edna.	Connellsville and Ursina Coal and Coke Co.,	Somerset.	E. H. Reed.	Scottdale.
Elm Grove.	W. T. Rainey.	Fayette,	Christian Echard.	Elm Grove.
Fairchance.	Fairchance Furnace Company.	do.	R. L. Martin.	Fairchance.
Fairview.	Dunbar Furnace Company.	do.	Robert Lang.	Dunbar.
Fairview No. 2.	Fairview Coal Company.	Somerset.	Thomas Rees.	Meyersdale.
Flug Hill.	do.	do.	do.	do.
Grindstone.	Redstone Oil, Coal and Coke Company.	Fayette,	W. R. Wilson.	Room 11 Lewis Block, Pittsburg.
Great Bluff.	E. A. Humphries & Co.,	do.	A. E. Humphries.	Dunbar.
Grassy Run.	Grassy Run Coal Company.	Somerset.	John Meagher.	Elk Lick.
Hill Farm.	Dunbar Furnace Company.	Fayette,	Robert Lang.	Dunbar.
Hamilton.	Mrs. Charlotte Cuelbraine.	do.	do.	do.
Hocking.	Chapman—Hocking Coal Company.	do.	J. T. Hocking.	Meyersdale.
Hurst.	W. P. Hurst & Co.,	Fayette,	W. P. Hurst.	Smock.
Juniala.	Juniala Coke Company.	do.	Adam Nicholson.	Juniala.
Kyle.	H. C. Frick Coke Company.	do.	F. J. Atkinson.	Juniala.
Keystone.	Keystone Coal Company.	Somerset.	F. J. Weld.	Oliphant Furnace.
Leith.	H. C. Frick Coke Company.	Fayette,	Harry Whel.	Meyersdale.
Langhead.	Martin Coke Company.	do.	L. S. McDowell.	Uniontown.
Lamont No. 1.	McClure Coke Company.	do.	M. H. Kerr.	Fairchance.
Lamont No. 2.	do.	do.	do.	Lemont Furnace.
Lamont No. 3.	H. C. Frick Coke Company.	do.	John A. Essar.	do.
Leisenring No. 1.	do.	do.	R. A. Slater.	Rogers town.
Leisenring No. 2.	do.	do.	Austin King.	West Leisenring.
Leisenring No. 3.	do.	do.	James Harding.	West Brownsville.
Wyn.	Hanna Brothers.	do.	A. L. Felson.	Connellsville.
Marlin.	Martin Meagher (Lessee).	do.	do.	do.
Marlin No. 1.	do.	do.	J. H. Harper.	Mr. Braddock.
Marlin No. 2.	do.	do.	J. H. Harper.	Dawson.
Marlin No. 3.	do.	do.	St. George Wadsworth.	Brownfield.
Nelle.	Brown & Caelran.	do.	F. C. Keith.	Uniontown.
Oliphant.	H. C. Frick Coke Company.	do.	Louis de Saules.	do.
Oliver.	Oliver Coke and Furnace Company.	do.	T. J. Mitchell.	Vanderbilt.
Percy.	Percy Mining Company.	do.	D. S. Coleman.	Pine Hill.
Paul.	W. J. Rainey.	do.	Stephen E. Wadsworth.	Brownfield.
Pine Hill.	C. W. Kimmel.	Somerset.	F. C. Van Dusen.	Uniontown.
Redstone.	H. C. Frick Coke Company.	Fayette,	do.	do.
Stewart No. 1.	Stewart Iron Company (Limited).	do.	Edward Snider.	do.
Stewart No. 2.	do.	do.	J. D. Boyd.	do.
Snider.	Edward Snider.	do.	do.	do.
Smock.	J. D. Boyd Coal Company.	do.	do.	do.

Statler & Standard, ...	E. Statler & Co., ...	Somerset, ...	E. Statler, ...	Elk Lick.
Shaws, ...	Cumberland and Elk Lick Coal Company, ...	do.	A. Chamberlain, ...	Meyersdale.
Shaw's Grassy Run, ...	do.	do.	do.	do.
Tub Mill Run, ...	Fair View Coal Company, ...	do.	Thomas Rees, ...	do.
Thomas, ...	Ben Thomas, ...	do.	Ben Thomas, ...	Connellsville.
Trotter, ...	H. C. Frick Coke Company, ...	Fayette, ...	John Shedd, ...	Cumbar.
Uniondale, ...	Reid Brothers, ...	do.	K. B. Reid, ...	Olinhart.
Wyman, ...	Elk Lick Coke Company, ...	do.	L. S. Atkinson, ...	Connellsville.
Wagner, ...	Reid Brothers, ...	do.	A. S. Newmeyer, ...	Dawson.
Washington, ...	Martin Mather (Lessee), ...	do.	F. M. Fox, ...	Lenont Furnace,
Youngstown, ...	Washington Coal and Coke Company, ...	do.		
	Youngstown Coke Company (Linn led), ...	do.		

TABLE NO. 2.—Gives the total number of tons of coal mined and tons of coke produced in each colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, &c., in the Fifth Bituminous Mine District for the year ending December 31, 1893.

Names and Location of Collieries.	Total production in tons of coal.	Total production in tons of coke.	Total shipment in tons of coal.	No. days worked.	No. persons employed.	No. fatal accidents.	No. non-fatal accidents.	No. kegs of powder used.	No. steam boilers.	No. horses and mules.	No. mine locomotives.	No. coke ovens.
Atlas, Fayette county.	35,400	23,700	..	1593	75	..	..	1	5	4	..	80
Anchor, Fayette county.	43,384	32,000	..	218	108	..	1	..	3	..	..	100
Beth, Somerset county.*	5,880	..	4,770	..	14	..	..	30	..	2	..	..
Beth, Somerset county.	60,000	..	..	270	70	..	2	600	2	5	..	..
Casselman, Somerset county.	60,000	..	40,000	..	70	..	..	600	..	..	..	..
Cal. V. Hay, Somerset county.*	25,240	1,500	25,240	122	47	..	..	600	..	5	..	10
Cumberland No. 1, Somerset county.	56,510	37,340	500	207	59	..	..	..	..	..	..	108
Cumberland No. 2, Somerset county.*	19,859	14,917	55	158	46	..	..	1	3	6	..	40
Chester, Fayette county.	19,154	13,735	..	86	53	..	1	..	1	5	..	100
Crossland, Fayette county.	764	..	548	..	2	..	..	..	1	..	..	30
Euna, Somerset county.	30,453	22,845	..	290	68	..	..	3	3	5	..	62
Elm Grove, Fayette county.	97,116	27,116	2,599	273	140	..	..	..	3	7	1	141
Fairchance, Fayette county.	27,615	18,020	1,559	151	67	..	..	..	3	5	..	70
Ferguson, Fayette county.	76,389	..	76,269	217	104	1	..	1,015	..	12	..	..
Fair View, Somerset county.	..	..	..	..	..	..	..	..	..	..	..	..
Flog Hill, Somerset county.	30,039	4,337	21,105	88	139	..	..	75	3	8	..	31
Grindstone, Fayette county.	6,227	5,062	..	99	19	..	..	..	1	3	..	16
Grea. Bluff, Fayette county.	18,696	..	18,696	184	32	..	..	175	..	3	..	150
Grossy Run, Somerset county.	65,091	43,227	1,845	160	140	2	..	..	3	5	..	..
Hill Farm, Fayette county.	65,625	..	65,625	245	84	..	..	..	..	..	..	..
Hamilton, Somerset county.	138,440	96,727	2,740	28	36	..	1	..	1	3	..	250
Hookton, Somerset county.	13,720	15,100	..	117	64	..	4	..	2	12	1	104
Irving, Fayette county.	..	..	..	..	..	..	..	..	..	..	..	..
Juniata, Fayette county.	..	..	..	..	..	..	..	..	..	..	..	..
Kyle, Fayette county.	..	..	..	..	..	..	..	..	..	..	..	..
Keystone, Somerset county.*	..	..	..	..	..	..	..	..	..	..	..	..

Names and Location of Collieries.

	242	8	25	1	300
Leith, Fayette county, . . .	39,17				
Langhead, Fayette county, . . .	58,675				
Lemont No. 1, Fayette county, . . .	24,507	6	4		227
Lemont No. 2, Fayette county, . . .	88,000		12		227
Lemont No. 3, Fayette county, . . .	105,000		7		13
Leisenring No. 1, Fayette county, . . .	161,000		13		500
Leisenring No. 2, Fayette county, . . .	141,452		10		500
Leisenring No. 3, Fayette county, . . .	153,872	2	43	2	500
Lynn, Fayette county, . . .	111,922	5	34	2	504
Lyons, Fayette county, . . .	74,615	1	9		
Marshall, Fayette county, . . .	14,000		100		
Mahoning, Fayette county, . . .	153,780	1	3		
Mt. Braddock, Fayette county, . . .	32,000	445	32		400
Nelle, Fayette county, . . .	38,000	170	3		100
Nelly, Fayette county, . . .	25,000	86	6		170
Nelly, Fayette county, . . .	26,000	172	3		170
Nelly, Fayette county, . . .	55,100	260	6		170
Nelly, Fayette county, . . .	120,000	333	14		320
Nelly, Fayette county, . . .	135,650	135	4		150
Nelly, Fayette county, . . .	163,678	278	32		324
Nelly, Fayette county, . . .	10,412	76	4		415
Nelly, Fayette county, . . .	136,000	136	25		415
Nelly, Fayette county, . . .	10,412	423	41		446
Nelly, Fayette county, . . .	1,100	232	10		120
Nelly, Fayette county, . . .	157,000	245	5		
Nelly, Fayette county, . . .	76,928				
Nelly, Fayette county, . . .	8,135	268	8		
Nelly, Fayette county, . . .	50,303	214	2		
Nelly, Fayette county, . . .	35,000	250	8		
Nelly, Fayette county, . . .	8,453	103	250		
Nelly, Fayette county, . . .	67,808	2063	10		75
Nelly, Fayette county, . . .	16,296	2063	2		
Nelly, Fayette county, . . .	43,874	182	6		
Nelly, Fayette county, . . .	13,710	249	2		
Nelly, Fayette county, . . .	180,331	346	2		
Nelly, Fayette county, . . .	16,990	148	8		464
Nelly, Fayette county, . . .			6		75
Nelly, Fayette county, . . .	36,840	215	7		103
Nelly, Fayette county, . . .	38	35	4		70
Nelly, Fayette county, . . .	3,271	1	25		6
Nelly, Fayette county, . . .	61,939	142	6		240
Total, . . .	2,092,993	6,533	175	7	7,276

* Idle all the year.

+ In with Fair View.

+650 rounds dynamite

110 nondegenerate

1

Lemont No. 1, Fayette county, ...	1	85	4	7	9	3	109	5	8	75	14	2	104	213
Lemont No. 2, Fayette county, ...	1	130	2	10	12	5	160	10	6	115	17	2	130	310
Leisenring No. 1, Fayette county, ...	1	130	..	16	13	5	187	5	6	100	10	3	130	311
Leisenring No. 2, Fayette county, ...	1	143	..	15	18	5	182	4	6	89	19	3	162	287
Leisenring No. 3, Fayette county, ...	1	101	5	17	8	1	136	4	8	80	3	2	102	271
Leisenring No. 4, Fayette county, ...	1	115	2	..	2	..	20	..	..	..	..	..	81	40
Morrell, Fayette county, ...	1	200	12	18	24	..	255	4	5	100	19	2	190	445
Mahoning, Fayette county, ...	1	42	2	..	..	..	52	3	3	32	1	1	40	82
Mt. Braddock, Fayette county, ...	1	80	..	5	4	..	50	2	5	18	7	4	36	86
Nelle, Fayette county, ...	1	80	..	5	10	3	99	2	3	60	5	3	73	172
Oliphant, Fayette county, ...	1	60	..	4	7	1	73	2	4	50	2	2	60	133
Oliver, Fayette county, ...	1	160	..	20	24	6	211	5	6	89	30	3	133	344
Percy, Fayette county, ...	1	33	..	4	3	4	45	1	3	24	2	1	31	76
Pine Hill, Somerset county, ...	1	200	..	20	18	2	241	6	7	150	3	16	182	423
Redstone, Fayette county, ...	1	9	..	2	1	..	13	..	..	..	..	..	..	13
Paul, Fayette county, ...	1	135	..	16	14	5	171	4	8	115	7	3	137	308
Stewart No. 1, Fayette county, ...	1	56	..	5	6	..	68	2	6	50	8	2	68	136
Stewart No. 2, Fayette county, ...	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Snider, Fayette county, ...	1	13	..	1	1	..	16	1	..	..	..	1	3	19
Smock, Fayette county, ...	1	47	6	1	6	1	62	1	..	..	6	2	9	71
Stadler & Standard, Somerset county, ...	1	40	3	..	6	..	50	..	..	..	..	..	..	50
Shaws, Somerset county, ...	1	64	8	4	2	4	88	1	..	..	5	2	15	103
Shaw, Grassy Run, Somerset county, ...	1	16	1	..	2	..	20	..	..	7	..	..	..	..
Thompson, Somerset county, ...	1	33	1	..	2	1	18	1	..	..	1	..	1	21
Thompson, Somerset county, ...	1	13	1	..	2	..	18	..	..	..	3	2	6	34
Trotter, Fayette county, ...	1	165	3	12	15	10	206	4	5	115	13	3	160	375
Uniondale, Fayette county, ...	1	28	..	5	4	1	39	1	2	26	1	1	31	70
Wynn, Fayette county, ...	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Wheeler, Fayette county, ...	1	46	4	4	4	1	60	2	3	31	5	1	42	102
Washington, Fayette county, ...	1	30	1	5	3	..	40	4	3	..	6	2	15	55
Youngstown, Fayette county, ...	1	103	..	14	16	11	145	3	6	48	12	2	71	216
Total, ...	51	3,245	90	321	355	84	4,146	105	141	1,800	281	99	2,487	6,633

TABLE NO. 4.—List of fatal accidents which occurred in and about the mines of the Fifth Bituminous Mine District for the year ending December 31, 1893.

Date of accident.	Name of Person.	Occupation.	Age.	Widow.	Number of orphans.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 6,	E. T. Williams,	Miner,	54	1	..	Fair View,	Somerset,	Killed by a fall of roof coal in his room.
7,	George Sagan,	Driver,	25	1	..	Hill Farm,	Fayette,	Killed between wagon and rib
17,	John Burns,	Miner,	38	1	4	do.	do.	Killed by fall of slate from the roof.
22,	William Burns,	do.	37	1	1	Leisenring No. 2,	do.	Killed by fall of slate from the roof.
27,	Michael Dorkin,	do.	32	1	1	Maunoir,	do.	Killed by fall of slate from the roof.
Apr. 17,	Joseph Orris,	do.	..	1	1	Leisenring No. 3,	do.	Killed while drawing ribs by fall of slate and roof coal.
June 6,	John Elish,	Driver,	33	1	3	Leisenring No. 2,	do.	Killed by loaded ear running over him. He
12,	David Westfall,	Roadman,	36	1	4	Redstone,	do.	fell from front of car.
								He was not killed.
								Had got all the posts out, and
								went in to dig out part of the stumpy, when
								the roof came down on him killing him in-
								stantly.
								Killed by fall of slate while drawing ribs.
July 1,	George Yotsko,	Miner,	35	1	4	Leisenring No. 2,	do.	Killed by fall of 10 of coal in his room.
Aug. 17,	Domineo Telesco,	do.	55	1	..	Morrell,	do.	Killed by a fall of slate while drawing posts in
Dec. 16,	Sarfew Manko,	do.	38	8	..	Lenont No. 1,	do.	ribs. He had got all the posts out but one
								which was back in "gob." In attempting
								to take it out he was instantly killed.
22,	William Polander,	do.	34	1	4	Oliver,	do.	Killed while drawing posts in ribs, by coal
								and slate falling on him.

TABLE No. 5.—List of non-fatal accidents which occurred in and about the mines of the Fifth Bituminous Mine District for the year ending December 31, 1893.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 2,	Nelson Jndy, ...	Miner, ...	45	M.	Casselman, ...	Somerset,	Leg broken by fall of rock after firing a blast.
6,	Stephen Schitko, ...	do.	34	M.	Smock, ...	Fayette,	Body bruised by fall of slate in his room.
9,	Charles Horn, ...	do.	33	M.	Anchor, ...	do.	Foot bruised by fall of slate in his rib.
21,	Joseph Prestash, ...	Driver, ...	26	S.	Leisenring No. 2, ...	do.	Foot broken by being caught between two wagons.
30,	James Nutash, ...	Tracklayer, ...	38	M.	do.	do.	Two fingers cut off by grabbing the haulage rope while it was in motion.
Feb. 4,	Ralph Wilson, ...	Miner, ...	50	M.	Lanchhead, ...	do.	Throat and arm broken by fall of slate.
11,	William C. Bowers, . . .	do.	..	M.	Lemont No. 1, ...	do.	Two ribs broken, and arm severely sprained, cuts on head and body by fall of slate.
13,	Thomas G. Pease, ...	Driver, ...	..	M.	do.	do.	Foot badly bruised by being run over by wagon.
James Gordon, ...	Miner, ...	..	22	S.	Lemont No. 2, ...	do.	Hand cut badly between two posts.
March 2,	John W. Smith, ...	do.	63	M.	Thomas, ...	Somerset,	Spinal chord injured near the base of brain, producing partial paralysis, caused by fall of roof of coal in his room.
7,	Benjamin Shipley, ...	Driver, ...	26	M.	Redstone, ...	Fayette,	Foot and ankle bruised by tail chain.
13,	Andrew McGulre, ...	Beil boy, ...	17	S.	Morrell, ...	do.	Leg bruised by hauling rope striking ft.
17,	John Rutka, ...	Miner, ...	..	M.	Wheeler, ...	do.	Arm broken between car and post.
22,	Jesse Jeffrey, ...	do.	26	M.	Tub Mill Run, ...	Somerset,	Leg broken and back severely injured by fall of roof of coal in his room.
April 19,	William Saylor, ...	do.	14	S.	Casselman, ...	do.	Severely burned by gunpowder; keg exploded while he was filling a cartridge.
May 4,	Mike Dolan, ...	do.	47	M.	Youngstown, ...	Fayette,	Foot bruised by loaded car.
8,	James Winters, ...	do.	..	S.	Shaw's Grassy Run, ...	Somerset,	Arm broken by fall of slate on heading.
10,	Alex. Kege, ...	Driver, ...	39	..	Junata, ...	Fayette,	Badly bruised by being thrown from a mule in barn-yard.
13,	Cal. Wilson, ...	do.	25	M.	Redstone, ...	do.	Hips badly bruised by being caught between wagon and mule.
20,	Andy Vrabie, ...	Miner, ...	45	M.	Lemont No. 1, ...	do.	Back hurt by fall of slate in ribs.
29,	William Spellman, ...	do.	38	M.	Stewart, ...	do.	Head, arm and leg bruised by fall of slate in working place.
June 2,	Smith Halfhill, ...	Driver, ...	24	S.	Youngstown, ...	do.	Ribs injured by fall of slate.
2,	Andy Kosak, ...	do.	24	M.	Leisenring No. 2, ...	do.	Car run over him, bruising his back and knee-cap.
24,	Crist Ruble, ...	Miner, ...	34	S.	Trotter, ...	do.	Head cut badly by fall of coal from rib.
July 1,	John Kopecha, ...	do.	40	M.	Leisenring No. 2, ...	do.	Hurt by fall of rock striking him on back.
5,	Joseph Gravowsky, ...	do.	..	M.	Lynn, ...	do.	Leg broken by fall of coal in his working place.

TABLE No. 5—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
July 5, 7,	Jack Flack George Richards, . .	Miner, ... Door boy, ...	32 17	M. S.	Lenont No. 1, ... Unimondale, ...	Fayette, do.	Head and shoulders injured by fall of slate in rib. Hand badly cut and leg broken; he fell asleep at his door and was run over by loaded trip.
27,	Andy Dabaa, ...	Miner, ...	36	M.	Lenont No. 1, ...	do.	Leg and nose broken by fall of slate in working ribs.
28,	John Kozak, ...	do.	28	S.	Morrell, ...	do.	Scalp and leg injured while drawing out posts in ribs.
Aug. 2,	John Millar, ...	Greaser, ...	14	S.	Langhead, ...	do.	Went to sleep in mouth of slope and was run over by falling of his leg, shoulder blade and foot.
Sept. 4, 14,	L. S. Hetterman, . . . Robert Stockdale, . .	Driver, ... Miner, ...	21 64	S. M.	Juniata, ... Smock, ...	do. do.	Injured between two mine cars. Leg broken and foot dislocated by fall of coal in his room.
20, Oct. 12,	Alexander Gray, . . . Bruce Deck, ...	Driver, ... do.	21 17	S. S.	Juniata, ... Oliver, ...	do. do.	Injured by car jumping the track. Back injured by being crushed between wagon and rib.
22, Nov. 21, 28,	John Carroll, ... William Martin, . . . August Judaman, . . .	Miner, ... Driver, ... Miner, ...	18 22 23	S. S. S.	Trotter, ... Hocking, ... Thomas, ...	do. Somerset, do.	Leg broken by fall of slate in his working place. Leg broken; crushed between car and post. Leg broken by fall of coal in his working place after firing a shot.
Dec. 4, 7,	Anton Fusco, ... Samuel Hagan, ...	do. Driver, ...	30 20	S. S.	Morrell, ... Oliver, ...	Fayette, do.	Foot badly bruised by being caught under car. Hand severely injured by being crushed between the bumpers of two cars while coupling them.
8, 15,	Charles Jones, ... Andrew Backstrom, . .	Miner, ... do.	28 34	S. M.	Juniata, ... Washington, ...	do. do.	Mine car ran over his foot, crushing it. Head severely cut by a piece of coal from a shot which he thought had missed fire; he went back to re-fire the shot when it exploded.
18, 28,	Frank Fair, ... John Suttles, ...	Driver, ... Miner, ...	21 24	M. S.	Statler & Standard, Lebenling No. 2, ...	Somerset, Fayette,	Bruised by being squeezed between car and rib. Foot slightly injured by coal and slate rolling from side of rib.

Sixth Bituminous District.

(CAMBRIA, SOMERSET AND INDIANA COUNTIES.)

Hon. Thomas J. Stewart, Secretary of Internal Affairs:

Sir: In accordance with the requirements of Section eleven, Article ten, of the Act of May 15, 1893, I have the honor of presenting herewith my annual report as Inspector of Mines for the Sixth Bituminous district for the year ending December 31, 1893.

The total production of coal was 3,140,284 net tons. The average number of days worked was 176, being but 12 days over half time. This shows that the producing capacity of the mines of the district is over five and a half millions tons, if they are worked full time.

The report contains the usual tables showing the coal and coke production, number of employees, etc., number of accidents, fatal and non-fatal, giving nature and cause of each. Also several articles on topics of interest to miners and mine foremen, with a statement of the condition of the drainage and ventilation of each mine.

Yours respectfully,

J. L. EVANS,
Inspector of Mines.

Cause of Fatal and Non-Fatal Accidents.

Fatal.

By fall of coal, ...	5
By fall of roof, ...	7
Total, ...	12

Non-Fatal.

By falls of coal, ...	9
By falls of roof, ...	3
By mine wagons, ...	2
Burned by gas, ...	1
Total, ...	15
Number of wives made widows by fatalities, ...	7
Number of orphans, ...	12

Mining Statistics for the Year 1893.

Total number of mines in the district, ...	75
Total number working during the year, ...	64
Total coal production in net tons, ...	3,140,284
Total coal shipped in net tons, ...	2,629,325
Total coke production, ...	109,348
Number tons mined per fatal accident, ...	261,690
Number of tons mined per non-fatal accident, ...	209,352
Average number of days worked, ...	176
Number of persons employed per fatal accident, ...	538
Number of persons employed per non-fatal accident, ...	430
Total number employed inside, ...	5,790
Total number employed outside, ...	564
Total number employed inside and outside, ...	6,354
Total number of horses and mules, ...	496

Accidents.

The total number of accidents for the year was, fatal, twelve, and non-fatal, fifteen. Of the twelve fatal accidents five were caused by falls of coal, and seven by falls of rock. Of this total, seven of the unfortunate ones lost their lives for the want of being more careful, or in other words, from their own negligence in not protecting themselves with the means at hand. Of the number of non-fatal accidents the same sad story must be repeated, as nine out of fifteen were the result of pure negligence and the violation of the mine rules by the unfortunate individuals meeting with them.

My experience when examining into the cause of the fatal accident is a sad one at all times, but doubly so when I learn that it was the result of neglect or carelessness on the part of the unfortunate himself, and for that reason I continually urge upon the mine foremen the necessity of enforcing a strict discipline in the mines, and I endeavor to show them that it is not to their credit to report an accident which was caused by negligence, or from a violation of the Mine Law, as it is an important part of their duty to live up to the law, and to see that those under their charge do the same, and, above all, not to permit men to neglect what they owe to themselves and families, namely, of securing their own safety, when provided with material to do so. It may be claimed as a defence that the mine foreman cannot always be with the men watching them, which is true; but he can, if he is a close observer, learn to know who of them are negligent and who violate the rules laid down in the law to prevent accidents.

A mine foreman should carefully study his men, and know how to deal with them and he should learn as claimed, to know who requires his attention most, and keep a watchful eye over such, to see that

they, while at their work, comply with the rules of the mine in protecting themselves, as well as others (in particular their own families, who suffer from their negligence). A mine foreman who will insist upon discipline in his mine, and do so in a courteous manner, can rest assured that eventually he will be respected by those whom he may possibly have to deal most severely with, and be much more respected by all of his men, and be the means of greatly reducing the accident lists of the mines.

There is another very important duty pertaining to the mine foreman, that when performed with care and the exercise of good judgment will undoubtedly reduce accidents, which is in the selection of men to do work that requires skilled miners to perform, such as drawing pillars, working through bad and treacherous roof, timbering, etc. I feel very confident that if this duty is performed properly, and a strict discipline enforced in the mines, that the accident list of the district will be greatly reduced.

General Condition of Mines.

The latter part of the year, 1893, has been unusually dull in the mining business. There are always certain repairs to be kept up in mines, whether working or idle, if they are kept in a proper condition for the health and safety of the workmen, but am sorry to state that at some of the collieries, repairs which are absolutely essential to be kept up have been very much neglected. The extreme dullness in the coal trade has, no doubt, caused a tendency in some of our mining people to let everything in the way of repairs at the mines run down, believing it to be economy; and to economize is certainly necessary in such times, but it is economy practiced in the wrong direction, and will be apparent in the course of a short time, as the evil effect of neglecting the general repairs of the inside work of a mine is so great, that it is not usually attempted more than once by the same person, as it proves to be a very expensive experiment.

In permanent improvements at the mines there seems to be almost a cessation, yet there were a few collieries that put in rope haulage, that was contracted for in the early part of the year, and a couple of fans were erected for ventilating, to replace furnaces.

Under the provisions of the new Mine Law, adopted May 15, 1893, there are quite a number of changes required in some of the collieries, and the promptness shown by a majority of the operators in complying is very gratifying. The most important change possibly in our non-gaseous mines, is the splitting of the air so as not to have more than 65 persons in one current, and to force the same through the face of all working places. This will be found somewhat of a difficulty, as the power in a majority of the furnaces in the shallow mines of the

Bituminous region is inadequate for the work, consequently they will have to be replaced by fans.

I expect to see considerable improvement made in the mode of producing ventilation upon the revival of the coal trade, as I am fully convinced that until better means than that of furnaces are adopted, the sanitary condition of the collieries will not be raised to the standard they should be for the health and comfort of the employes, nor to that expected by the originators of the Mine Laws.

Quite a number of new mines were opened up in the beginning of the year, all of them adopting furnace ventilation. This was a mistake in several cases, if not in all, as they should have put up fans, which would be nearly as cheap in first cost, and they can be operated with less than one-half the expense that a furnace can, and give far better satisfaction in producing ventilation. Several of the furnaces alluded to will have to be replaced very soon, on account of being inadequate to produce the volume of air required for the mines, though not being in use much over one year.

There is nothing more surprising to me than to see the tenacity shown by so many of our mining men to stick to the furnaces as ventilators as the advantage of fan ventilation is so plain in its efficiency and cost of running. But I believe that they are beginning to consider this matter more thoroughly and for that reason I feel confident, as stated, that very great improvement will be made in the ventilation of the mines when an increase in the coal trade warrants it.

Notwithstanding the deficiencies noted, I am glad to state that the general condition of the mines is gradually improving every year, and under the new law, when they have made the changes required by it, I fully expect to report a still further improvement in them, as a compliance with the law will undoubtedly increase their safety and sanitary condition.

Cambria County Mines.

Rolling Mill Mine.—Is located at Johnstown and supplies the Cambria Iron Company Works with coal. It is a very extensive colliery, employing about 300 persons. This is one of the mines that requires great skill to manage, as there is considerable explosive gas given off from the strata, and the greatest care and discipline is required to be enforced to prevent serious accidents.

During the year several thousand dollars were expended on enlarging and improving the air-ways to increase the volume of air passing through the mine. A difficulty was encountered here that was very hard to overcome, in the form of a swamp in the coal seam, at a distance of two miles from the entrance of the mine, too far to carry steam, and at a depth of about 400 feet from the surface. If a

drill hole was used to carry steam to the pumps, it would bring the boiler plant on top of the mountain, which would make it very expensive to get the coal to boilers. The water collecting in this swamp threatened the closing off of the main air-current, and something had to be done at once to remove it. The problem was, how to do this. It was finally decided to put in an electric pump, which proved a great success in removing the water. This so much improved the air-ways, that over double the quantity of air is now forced through the mine, and it is well distributed through all parts of the workings.

A. J. Haws Mine.—Is also located at Johnstown and is ventilated to perfection by the use of a blowing fan of 12 feet diameter. The drainage of the mine is also very good.

Gautier No. 3.—This mine belongs also to the Cambria Iron Company, the coal being used at the mills. A fan twelve feet in diameter has been erected here, which passes more than 25,000 cubic feet of air per minute through the workings. A small mine wagon is used, and run in under the roof, to avoid blasting the rock, for mule height. The rooms, or breasts, are driven about 200 feet. The seam is three feet three inches in thickness, and easily mined. It is well ventilated and drained at present.

Mineral Point Mine.—Is located about five miles east of Johnstown on the main line of P. R. R. The Clarion Bed is worked here. A number of improvements have been made during the year in the haulage, by putting in a rope haul which draws the coal from the mine and also drops it down the plane on the outside to the tippie. There is another improvement about to be made at this colliery, which is needed to make it a first-class plant, and that is, the putting in of a fan to improve ventilation.

Euclid Mine.—This colliery is located at South Fork, and operated by the Euclid Coal Company. Prior to 1893, it was ventilated by the furnace of J. C. Stineman, but it is now disconnected from that mine and ventilated independent of the Stineman workings. They are now working on a new opening, and propose putting in another air shaft and furnace, which will improve the sanitary condition of the workings.

J. C. Stineman Mine.—Extensive improvements have been made at this colliery during the past year in haulage, which is now done by machinery, the tail rope system having been adopted. This mine has been operated very regularly during the year, giving employment to a large number of men. The ventilation, drainage, and general condition of the mine as to safety is good.

Aurora Mine.—This is not a very extensive colliery, but is kept in good condition. Ventilation, drainage, and general condition of mine is good.

Sumner No. 2.—Is located at South Fork, and ventilated by the exhaust steam from pumps, which is not a very satisfactory means for producing ventilation, but in this case, as the work is not very extensive, it keeps the mine in a fairly good condition. I hope to find a fan here in my next report.

Argyle Mine.—The ventilation of this colliery is produced by a furnace, and it is one of the best ventilated in the district. The furnace is a very large one, and is well attended to. The air-ways of the mine are made large and roomy by taking advantage of as many ways to pass the air through as possible, thereby reducing the friction of the mine to a minimum. They have just completed the work of putting in a rope haulage. The length of haul is one mile. J. S. Mack, M. E., of Greensburg, has charge of the work. Sanitary condition of the mine is good.

Henrietta Shaft.—Is located at Dunlo, about seven miles Southeast of South Fork, on a branch road off the main line of P. R. R. This is a new operation. They employ at present 103 persons outside and inside. The most of the work in the mine is to the dip of the seam, and the coal is hauled to the shaft by machinery—rope haulage. The ventilation at present is produced by the exhaust steam from the pumps, which is not expected to be permanent. At last examination of the mine the ventilation was good, but the drainage was somewhat defective.

Yellow Run Shaft.—This also is a new plant, the company having just completed their second opening. The most of the work in this mine is also to the dip. When examined last there were only 18 men employed inside, until the second opening would be completed. The ventilation is produced by a small fan, as a temporary means, until the mine becomes developed sufficiently to work a large force of men. When examined last it was in fairly good condition, excepting that it had but one opening, but now as stated, it has two. This mine is located at Dunlo, and operated at present by the Berwind White Coal Company.

Dunlo Mine.—Is located at Dunlo, and working on the upper coal seam of the lower coal measures E Bed, or Lemon Seam, which is above water level, and worked by a drift opening. The ventilation is produced by a furnace that gives a fairly good current of air which is sufficient for the number of men employed inside, when the furnace is properly attended to.

Webster No. 3.—Is also located at or near South Fork. The mining town is called Ehrenfeld, which contains some of the most comfortable houses for miners in the State, and I am glad to report that they are just as comfortable in the mines. These mines are kept in the very best sanitary condition, and the most improved methods of mining, hauling, and ventilation have been adopted. They have also in

use in the mine two self-acting inclines to drop the loaded wagons down from the higher levels to the lower levels, which draw up the empty wagons, thus doing away with a great many mules. The sanitary condition of the mines is fully up to the requirements of the law in every respect.

Portage Mines.—There are on this branch nine mines, but of this number only four have done much work during the last year.

Continental No. 2 is just opening up, and No. 1 has done very little work all the year. Trout Run Slope has not been in operation since July, but when examined last was found to be in a pretty fair condition. It is ventilated by a fan.

Caldwell Mine only worked a few men a part of the time during the year, therefore was not examined. Pearce Brothers' mine was the same; having done very little work, employing only a few men.

Lukins Slope.—This mine has worked fairly well during the year, and has been examined regularly and found to be in a fairly good condition each time. This is a slope driven down on the pitch of the seam, with cross-headings driven off every 320 yards on the strike of the seam or level, and each one is ventilated separately by bridging the air over the main slope, and forcing it by a fan into each level. The drainage is also fairly good.

Anchor Mine.—Is a drift opening ventilated by a 12-foot fan. The ventilation here on my last examination was much improved since my former visits, but the drainage was somewhat defective, requiring considerable ditching to have it up to the standard.

Puritan Shaft.—This is a shaft opening, as its name indicates, and is rather a wet mine, making quite a large quantity of water, which would naturally require a great deal of room for drainage which I am sorry to say is a little lacking here. The ventilation I found good in every part of the mine on my last visit. It is divided into two splits, and arrangements are now being made for the third. A fan produces the ventilation for this colliery. Five of the collieries on this branch are ventilated by fans.

The Ebervale Mine has done no work during the past year.

Benscreek Mines.—There are five collieries operated on this branch. Dysert No. 2 is one of the old mines of the mountain, and there is not much to be said in its favor as a model mine, as all of them are generally a source of expense to the operator, as they are miserably drained and ventilated. This mine is connected with another one about one mile further up the run, in the direction of the rise of the coal, which gives a second opening to it, with a difference in level of about 200 feet. If it were not for the other opening with its difference of level, I doubt very much whether they could run the mine to-day without going to an enormous expense to open up new return air-ways. As it is, with the natural advantages they have they can run, but I

am sorry to say that it is far from being a well ventilated mine, partly for the reason that they do not take the advantages that nature has offered them to assist in putting their mine in good condition.

Plane Mine.—This is the colliery adjoining the Dysert, and is also favored with natural advantages for ventilation, but they are not utilized as they should be. The result is, that it is not in as good condition as it ought to be. I hope to see this and the Dysert mine improved during the next year.

Columbia Mine.—The ventilation of this colliery is generally found in good condition, although produced by a furnace, as they keep a man especially employed to look after it, something that is much neglected by a majority of the mines which use furnaces to produce ventilation, thus causing them to be a curse instead of a benefit to the miner, as it is only an makeshift if not properly attended to.

Sonman No. 1.—Is ventilated by a fan, but I regret to say that the ventilation here is not up to the standard, by any means, and is another illustration of the mistake made in not opening up work properly to enable those in charge to ventilate them when extensively mined. The fan by which they produce ventilation is of sufficient size for a mine twice as extensive as this one, but up to the present time it is not a great success, on account of so much leakage. They do not get over one-fourth of the air to the face of the workings, it being lost by passing through many old workings that are very difficult to close up, only at an enormous expense, which could have been saved if the mine had been properly opened up and worked in the first place.

Sonman Shaft.—The ventilation of this mine is produced by an 18-foot diameter fan. The drainage and ventilation is good, the latter having been much improved by the erection of the new fan, which was put in to replace a 10-foot fan formerly used to ventilate with, also by the making of larger air-ways. The objectionable part of this plant is the hoisting apparatus, which is not very attractive, and I believe can be made more substantial and safe. I recently learned that the whole of the outside part of this plant is to be remodeled soon, which will add greatly to its appearance, as well as to its general safety.

Sonman No. 2 Mine. The ventilation of this colliery is very defective, and with their present methods of mining, it is rather doubtful if a 50-foot fan would force air to the face of the workings. In passing air through mines that are extensively worked, the in-take air-way must be kept as clear from doors and other means of leakage as possible, or air cannot be carried to the face of the work. In this mine the air passes no less than 7 or 8 doors before the face of the work is reached, also a number of other openings through which it may escape in case every door was closed, but the probability is, that some of them are open every hour of the day. It is therefore of the greatest importance to open up a mine so that no doors will be required between the in-

going current and the return, thus having an unbroken air-way to the face of the work. The drainage is pretty fair, but, as stated, something must be done to improve the ventilation, and what is especially needed is a better system of mining.

Lilly Slope.—Is located at Lilly, and operated by the Lilly Coal Co. The system of mining, hauling and ventilation here is on the most improved system, consequently the mine is in good condition as regards drainage, ventilation and general safety.

Cresson Shaft.—This is the deepest shaft in the district, and being below all the other mines at this point, there is a large body of water that must be gotten rid of, and to force it up some 300 feet requires considerable power. This company has been rather unfortunate during the past year. The head frame of their shaft took fire and was destroyed. This caused several months' idleness at the mine, but they started up again on November 23d, with an improved head-frame and a self-dumping cage. The inside arrangements for ventilating have been somewhat neglected, and need considerable improving to be in first-class condition.

Gallitzin Slope.—This is one of the finest under-ground plants in the district. It is well drained and ventilated, and very nicely arranged for haulage. The mine on the whole is in very good condition.

Gallitzin Shaft.—This colliery was idle from June 30th until about the beginning of December; therefore has not been examined for some time. When it is operated regularly I found the ventilation in good condition, but on my last examination, before it shut down, I found the drainage somewhat defective for want of the ditches being cleaned. The mine was in good condition otherwise at that time.

Bear Ridge.—This colliery is located about two miles up the Lilly Branch from the town of Lilly. The ventilation and drainage are only fair; the former needs some improvement. They talk of putting up a fan, by which to ventilate.

Sterling Mines Nos. 8 and 9.—Are located at Hasting and operated by the Hasting Coal Co. These are large operations connected under ground, but ventilated separately—the one by furnace, and the other at present by a fan which has just been put in to replace a furnace. Both mines are run in on the dip of the coal, and hauling is done by machinery, the endless rope system being used. The pumps in the mine are run by compressed air. The ventilation is being improved somewhat by the erection of a new fan, which will be used to assist the furnace. I believe that more consideration should be given to the power required in the small seams of coal over that of the larger ones to produce the ventilation, by those who have direct charge of the mine for the operator. As in the case of these mines, two good shafts, and two first-class furnaces were put in, but were found to be entirely too small to do the work. The size or heighth of coal seam,

and the extent of the workings should be taken account of before deciding upon the amount of power required for ventilation, so as not to have the additional expense of replacing it in a couple of years.

The system of mining is double headings, and, as stated, the hauling is done by machinery, and pumping by compressed air. All of which help to improve the condition of the mines. There are employed at the two mines 582 persons, inside and outside.

Sterling No. 10 Mine.—This colliery has been idle for the greater part of the year. The ventilation is produced by furnace. The mine when working is kept in good condition.

Sterling Nos. 11, 12 and 13.—Are new operations, and in Nos. 11 and 12 they have put in large and powerful furnaces, which will no doubt give sufficient power to ventilate by until the mines are worked out. As to No. 13, I have not made an examination there, as they have not yet started to ship coal. The drainage and ventilation of the two former mines are good, and their general safety as well looked after as can be.

Benton No. 1 Mine.—Is located at Hastings. The ventilation and drainage was good when examined last, although it is a difficult mine to force air through on account of the smallness of the seam, which is about three feet in thickness but the coal is of very good quality.

Benton No. 2.—Is located at Spangler and ventilated by furnace. The seam of coal here is thicker, consequently much easier ventilated. When examined last I found the drainage, ventilation and general condition of the mine very good.

Oak Ridge Mine.—Is located at Hastings. The ventilation is produced by furnace, and when examined last was found to be in good condition, as was also the drainage and general condition of the mine.

Hastings Mine.—This colliery is operated by the Chest Creek Coal and Coke Company, but has been idle for several months. There are two mines here. The old one is fast working out, while the new one is opening up to take its place. There are 152 coke ovens at this plant. The new mine is opened up on the most modern plan of mining, double drift, and separate splits to be used in the ventilation. Both collieries have been idle since last July.

Cymbria Mine.—Is located near Spangler, and also near Barnsboro. This mine has been working very steadily during the past year, giving employment to 85 or 90 miners. The ventilation and general condition of the mine is good.

Delta Mine.—Is located near Barnsboro, Cambria county, and is operated by the Delta Coal Mining Co. This colliery has practically done nothing since September first. On my several examinations of the mine, I found it to be worked in a good, practical manner, although the ventilation could have been improved, as they have only a temporary furnace to ventilate with, but they contemplate putting in

a fan, which no doubt would have been done ere this if the mine had been in operation.

Spangler Mine.—Is located on the outskirts of the town of Spangler, having started up about November 1st and therefore was not examined.

Lancashire Nos. 3, 4 and 5 are located near Barnsboro, or at least the two former, No. 5 being near Spangler. The two latter have not done much work during the year, but are in good condition now for operation. No. 3 has been worked considerably during the year. When examined last it was found in fairly good condition as regards ventilation, drainage and general safety.

Ellora mine is located near Carrolltown, Cambria county, on the branch road running out to Spangler. The ventilation here is produced by a furnace, which they promise to replace by a fan, as it is what I would term a temporary concern, and not of sufficient capacity to furnish air for the mine, but as the work is not extensive, it supplies them fairly well yet. They have had considerable trouble here through meeting with local swamps in the coal seam, from which it is difficult to drain the water.

Patton mines are seven in number; first,

Patton Nos. 1 and 2 Mines.—These are located near Carrolltown, the coal coming to the main line by way of Patton, and out to the Beech Creek road over the Hastings Branch of P. R. R. They were opened up during 1893. Their condition as to ventilation is excellent, each being provided with a good furnace. They are also well drained. Their general safety is all that can be desired.

Ashcroft Mine.—This colliery began shipping coal early in 1893, and has been running very steadily ever since, a part of the time night and day. The ventilation is produced by a small furnace, which will have to be replaced very soon by a larger one or by a fan, as the capacity of the mine is now beyond that of the furnace to supply it properly with air. I expect they will put in a fan here in the near future.

Columbia Mine.—Is another operation opened up during 1893. This colliery has also a small furnace, which they promise to have replaced at once by a fan. The ventilation is fairly good here, considering the kind of furnace they have, as the work is new and there is not a great distance for the air to travel, and in addition, the seam of coal is of pretty fair height, which gives them a good sized air-way if driven reasonably wide.

New Pardee Mine.—This colliery is on the outskirts of the new town of Patton, and is fairly well ventilated and drained, but will soon be improved by the erection of a fan to replace the furnace.

Flanigan Run mine is operated by the Patton Coal Co. This is the most extensive operation up to the present time in the Patton district.

The ventilation and drainage here was in pretty fair condition when examined last, except in one heading, where they had neglected to put up a door to close off a cut-through; but I am inclined to think that this mine will very soon be beyond the capacity of the furnace, and therefore, will require a larger furnace, or a fan.

Moshanon Mine.—This colliery is opened up on the Hastings branch, about three-quarters of a mile beyond Patton, and the coal is shipped by the Beech Creek road. Those in charge here have erected a good sized furnace, which will no doubt furnish sufficient air for some time, if it is properly attended to. The drainage of the mine is also very fair up to the present time.

Alpha Mine.—Is located near Barnsboro. It is a new opening, having shipped only 4,000 tons of coal during the year. I have not yet examined the inside workings, as the mine was not in operation when I made my last visit there. It is their intention to put in a fan to ventilate with.

Dean Nos. 3 and 4 Mines.—These mines are located on the branch running from Cresson to Coalport. There is a coke plant of 88 ovens here, but they have been idle all the year, and the coal has been shipped to market. These collieries are connected under ground, but are ventilated separately, No. 3 by furnace, and No. 4 by fan. The first is an old mine. Nearly all the work now being done in it, is robbing of pillars and heading stumps. The ventilation of No. 4 is in fair condition. The drainage is not very good, and is very difficult to improve, as the strata above the coal is very open and in wet weather the mine takes in a large quantity of water—more than can be carried in the drains.

The Ambsbury mine which this company has been operating, has not worked any for over ten months.

Patton mine is located about two miles above Coalport on the Cresson & Coalport branch railroad. The opening which is being operated at present is a new one, the operators having abandoned the old opening which was opened at the highest point of their coal tract which necessitated an incline to drop the coal down to the railroad. The new one is operated on the lower part of the coal tract, thus doing away with the plane. The arrangements for ventilating in the new mine are not yet completed. They only employ about 18 miners here as yet.

Ingleside mine is located south of Johnstown about five miles, and is located on the Somerset & Cambria branch of the Baltimore & Ohio railroad, and operated by the Johnson Company and supplies their mills at Johnstown. It is ventilated by a fan, and is in good condition in every respect.

Krebbs Mine.—This colliery is operated by the Lister Coal Co., and is located about two miles north of Somerset town on the Somerset &

Cambria branch of the B. & O. R. R. The seam of coal mined here is the C' or what is known in Johnstown as the Cement seam, which has been worked there for over 40 years for supplying the rolling mills. The general condition of the mine is good.

Bethel Mine.—Is also located on the Somerset & Cambria branch of the B. & O. R. R., and is operated by the Bethel Coal and Coke Co. Part of the coal mined here is used to supply the engines on this road, the balance is shipped to market. The ventilation of the mine is good and general condition all that can be expected.

TABLE NO. 1—Showing location, &c., of collieries in the Sixth Bituminous Mine District.

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Postoffice Address.
Alpha, ...	Knight & Co., ...	Cambria, ...	E. F. Reese, ...	Hastings, Cambria county, Pa.
Argyle, ...	Argyle Coal Company, ...	do, ...	J. P. Wilson, ...	South Fork, Pa.
Aurora, ...	Aurora Coal Company, ¹	do, ...	D. W. Lingle, ...	do, ...
Anchor, ...	Cambria Coal Mining Company, ...	do, ...	E. S. Brubaker, ...	Portage, Cambria county, Pa.
A. J. Haws & Son, ...	A. J. Haws & Son, ...	do, ...	H. Y. Haws, ...	Johnstown, Pa.
Ashcroft, ...	John Ashcroft, ...	do, ...	John Ashcroft, ...	Pattin, Cambria county, Pa.
Bethel, ...	Bethel Coal and Coke Company, ...	Somerset, ...	Joseph Vinzhi, ...	Hillsopple, Somerset county, Pa.
Bear Rock, ...	Bear Rock Coal Company, ...	Cambria, ...	John Leahy, ...	Lilly, Cambria county, Pa.
Benton No. 1, ...	Benton Coal Company, ...	do, ...	D. W. Holt, ...	Hastings, Cambria county, Pa.
Benton No. 2, ...	do, ...	do, ...	do, ...	do, ...
Columbian, ...	Jos. H. Relly & Co., ...	do, ...	John K. Powell, ...	Phillipsburgh, Centre county, Pa.
Cresson shaft, ...	Cresson Coal and Coke Company, ...	do, ...	John K. Powell, ...	Cresson, Cambria county, Pa.
Caldwell, ...	Caldwell & Co., ...	do, ...	J. E. Wilson, ...	Portage, Cambria county, Pa.
Cambria, ...	Cymbria Coal Company, ...	do, ...	C. C. Campbell, ...	Altoona, Blair county, Pa.
Cambria, ...	J. L. Mitchell, ...	do, ...	Wm. M. Smith, ...	Gallitzen, Cambria county, Pa.
Gashon, ...	Cambria Iron Company, ...	do, ...	W. H. Morris, ...	Johnstown, Cambria county, Pa.
Coneaugh, ...	Coneaugh Coal Company, ...	do, ...	J. P. Wilson, ...	South Fork, Cambria county, Pa.
Continental No. 1, ...	Continental Coal Company, ...	do, ...	J. P. Wilson, ...	Portage, Cambria county, Pa.
Dunlop, ...	Pumto Coal Company, ...	do, ...	J. P. Wilson, ...	South Fork, Cambria county, Pa.
Dysert, ...	D. Laughton & Co., ...	do, ...	Thomas Leahy, ...	Lilly, Cambria county, Pa.
Dean No. 2, ...	Cresson Coal and Coke Company, ...	do, ...	P. H. Wall, ...	Frugality, Cambria county, Pa.
Dean No. 3, ...	do, ...	do, ...	do, ...	do, ...
Della, ...	Delta Coal Mining Company, ...	do, ...	Lawrence Brown, ...	Hastings, Cambria county, Pa.
Euclid, ...	Euclid Coal Company, ...	do, ...	J. H. Dietrich, ...	Altoona, 315 Fourth st., Cambria co.
Ellora, ...	Ellora Coal Company, Limited, ...	do, ...	John R. Reed, ...	Johnstown, Cambria county, Pa.
Flanigan Run, ...	Pattin Coal Company, ...	do, ...	Alex. Dunsmore, ...	Phillipsburgh, Centre county, Pa.
Gallitzen shaft, ...	Mitchel Coal and Coke Company, ...	do, ...	W. M. Smith, ...	Gallitzen, Cambria county, Pa.
Gaulter No. 3, ...	Taylor & McCoy, ...	do, ...	E. A. Baldrige, ...	do, ...
Hastings, ...	Cambria Iron Company, ...	do, ...	W. H. Morris, ...	Johnstown, Cambria county, Pa.
Henrietta, ...	Chest Creek Coal and Coke Company, ...	do, ...	W. C. Shiffer, ...	Hastings, Cambria county, Pa.
Ingleside, ...	Henrietta Coal Mining Company, ...	do, ...	W. H. Blackburn, ...	Dunlo P. O., Cambria county, Pa.
Krebs, ...	Ingleside Coal Company, ...	do, ...	Alfred Slater, ...	Johnstown, Cambria county, Pa.
Lilly slope, ...	Listie Mining and Manufacturing Company, ...	Somerset, ...	George J. Krebs, ...	Somerset, Somerset county, Pa.
Lancashire No. 3, ...	Lilly Coal Company, ...	Cambria, ...	C. A. Hughes, ...	Altoona, Pa.
Lancashire No. 4, ...	Auneston Coal Company, ...	do, ...	H. K. Stauffer, ...	Burnsboro, Cambria county, Pa.
Lancashire No. 5, ...	do, ...	do, ...	do, ...	do, ...
Mineral Point, ...	Fraus & Co., ...	do, ...	Evan Evans, ...	Spangler, Cambria county, Pa.
Moshannon, ...	Mitchel Point Coal Company, ...	do, ...	S. B. Price, ...	Johnstown, Cambria county, Pa.
New Pardee, ...	E. P. MacDonell & Co., ...	do, ...	E. P. McCormick, ...	Pattin, Cambria county, Pa.
Oak Ridge, ...	Magee and Lingle, ...	do, ...	W. C. Lingle, ...	Phillipsburgh, Centre county, Pa.
Plain, ...	Dunwidde, Campbell & Co., ...	do, ...	James Campbell, ...	Hastings, Cambria county, Pa.
Pattin shaft, ...	E. W. Mentzer, ...	do, ...	John A. Leup, ...	Lilly, Cambria county, Pa.
Pattin No. 1, ...	Scott Coal Mining Company, ...	do, ...	Joseph Campbell, ...	Portage, Cambria county, Pa.
Pearce, ...	R. B. Wighon & Sons, ...	do, ...	Charles Sharpless, ...	Phillipsburgh, Centre county, Pa.
Pattin No. 2, ...	George Pearce & Bros., ...	do, ...	George Pearce, ...	Dunlo P. O., Cambria county, Pa.
Richland No. 1, ...	F. G. Patton, ...	do, ...	F. G. Patton, ...	Clearfield county, Pa.
	Evans Bell Mining Company, Limited, ...	do, ...	George P. Bell, ...	Dysart, Cambria county, Pa.

Rolling Mill, ...	Cambria Iron Company, ...	do.	do.	W. H. Morris, ...	Johnstown, Cambria county.
Spangler, ...	Summit Coal Company, ...	do.	do.	C. F. Frazer, ...	Hastings, Cambria county.
Sumner No. 1, ...	Lukins & Haupt, ...	do.	do.	R. T. Longwell, ...	Portage, Cambria county.
Sonman No. 1, ...	W. H. Piper & Co., ...	do.	do.	Daniel Leahy, ...	Lilly, Cambria county.
Sonman No. 2, ...	do.	do.	do.	Patrick Leahy, ...	do.
Sonman shaft, ...	Sonman Coal Mining Company, ...	do.	do.	Joseph Patterson, ...	Myra P. O., Cambria county.
Sterling Nos. 8 and 9, ...	do.	do.	do.	J. L. Spangler, ...	Hastings, Cambria county, Pa.
Sterling No. 10, ...	Sterling Coal Company, ...	do.	do.	R. T. Longwell, ...	Portage, Cambria county.
Sterling No. 11, ...	Lukins and Haupt, ...	do.	do.	W. I. Stineman, ...	South Fork, Cambria county.
Sterling No. 12, ...	Stineman Coal and Coke Coke, ...	do.	do.	Joseph Parterson, ...	Myra P. O., Cambria county.
Sterling No. 13, ...	Sonman Coal Mining Company, ...	do.	do.	Philip Hartman, ...	Erenfield, Cambria county.
Stineman, ...	John C. Scott & Sons, ...	do.	do.	W. J. Williams, ...	Johnstown, Cambria county.
Trout Run, ...	W. J. Williams, ...	do.	do.	Wm. Rodda, ...	Dunlo P. O., Cambria county.
Webster No. 3, ...	Berwin White Coal Mining Company, ...	do.	do.		
Williams, ...					
Yellow Run, ...					

TABLE NO. 2.—Gives the total number of tons of coal mined and tons of coke produced in each colliery, number of days worked, number of employees, number of persons killed and injured, number of kegs of powder used, &c., in the Sixth Bituminous Mine District, for the year ending December 31, 1893.

Names and Location of Collieries.	Total production in tons of coal.	Total production in tons of coke.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.	Number stationary engines.	Number coke ovens.
Alpha, Cambria county, ...	4,239	..	4,239	80	40	..	..	40	1	1	..	..
Arzyle, Cambria county, ...	80,801	..	80,801	313	120	..	..	750	1	20	1	..
Aurora, Cambria county, ...	16,840	..	16,840	180	84	..	..	150	..	3	..	..
Anchor, Cambria county, ...	18,816	..	18,816	80	88	..	..	108	1	8	1	..
A. J. Haws, Cambria county, ...	20,924	..	..	240	36	..	..	166	2	4	1	..
Asherott, Cambria county, ...	44,580	..	..	100	156	..	..	250	..	3	..	..
Behol, Somerset county, ...	15,910	..	15,910	280	20	..	..	13	..	2	..	..
Bear Rock, Cambria county, ...	23,000	..	23,000	200	34	..	..	100	..	3	..	..
Benton No. 2, Cambria county, ...	23,322	..	23,322	240	40	..	..	200	..	2	..	..
Benton No. 1, Cambria county, ...	36,834	..	41,200	210	70	..	..	600	..	4	..	..
Columbia, Cambria county, ...	31,883	..	..	170	49	..	..	35	..	4	..	..
Columbia, Cambria county, ...	31,898	..	31,898	167	62	..	..	150	..	3	..	..
Cresson shaft, Cambria county, ...	23,860	..	23,064	200	26	2	..	96	8	4	3	..
Gadwall, Cambria county, ...	2,500	..	..	100	8	..	..	75	..	1	..	..
Gymbria, Cambria county, ...	69,827	..	69,827	180	95	1	..	375	..	9	..	..
Columbia, Cambria county, ...	43,680	..	42,840	123	96	1	..	134	..	2	..	..
Conemaugh, Cambria county, ...	34,836	..	36,836	313	41	..	..	380	1	3	1	..
Continental No. 1, Cambria county, ...	18,080	..	18,080	130	41	..	..	70	1	4	2	..
Dunlo, Cambria county, ...	20,808	..	20,808	283	36	..	..	560	..	21	..	..
Dysert, Cambria county, ...	54,019	..	54,000	154	125	..	..	250	..	10	..	..
Dean No. 3, Cambria county, ...	112,000	..	112,000	250	121	2	..	500	1	6	1	..
Dean No. 4, Cambria county, ...	113,640	..	113,640	250	134	..	..	600	..	12	..	..
Delta, Cambria county, ...	17,924	..	17,924	220	55	..	..	130	..	3	..	..
Euclid, Cambria county, ...	18,122	..	18,122	216	52	..	..	275	..	3	..	..
Euclid, Cambria county, ...	36,200	..	36,200	180	68	..	..	300	..	3	..	..
Ellora, Cambria county, ...	54,000	..	54,000	133	137	..	..	200	..	28	..	..
Flanagan Run, Cambria county, ...	156,850	28,464	168,507	201	322	..	..	535	..	2	..	..
Galitzen slope, Cambria county, ...	96,413	..	96,413	359	138	..	..	300	..	1	..	..
Galitzen shaft, Cambria county, ...	44,710	..	21,897	..	43	..	..	64	7	2	..	..
Gaulter, Cambria county, ...	20,332	..	..	284	..	..	..	..	..	..	..	..

Hastings, Cambria county, ...	72,489	36,184	119	288	1	1	418	4	28	2	153
Henrietta, Cambria county, ...	46,860	250	103	103	..	..	330	1	5	4	..
Inglefield, Cambria county, ...	54,920	190	190	67	..	..	420	1	7	..	..
G. C. Stinemann, Cambria county, ...	148,006	264	264	260	..	..	500	2	22	1	..
Krebs, Somerset county, ...	22,400	275	275	73	..	..	..	..	..	..	..
Lilly slope, Cambria county, ...	24,225	176	176	49	..	1	55	1	6	1	..
Lancashire No. 3, Cambria county, ...	7,929	80	33	33	..	..	25	..	1	..	..
Lancashire No. 4, Cambria county, ...	22,400	135	69	69	..	..	50	..	4	..	..
Lancashire No. 5, Cambria county, ...	2,643	100	24	24	..	..	25	..	1	..	..
Mineral Point, Cambria county, ...	13,617	149	37	37	..	..	200	1	3	1	..
Moshanon, Cambria county, ...	16,900	92	73	73	..	..	100	..	2	..	..
New Pardee, Cambria county, ...	43,832	210	72	72	..	..	150	..	6	..	..
Oak Ridge, Cambria county, ...	29,603	103	53	53	..	..	144	..	3	..	..
Piane, Cambria county, ...	46,948	277	177	177	..	..	200	..	12	..	..
Puritan, Cambria county, ...	73,984	277	177	177	..	..	200	..	12	..	..
Purton Nos. 1 and 2, Cambria county, ...	18,000	162	139	139	..	..	380	4	1	2	..
Patten, Cambria county, ...	18,818	180	34	34	..	..	102	..	3	..	..
Patten, Cambria county, ...	11,967	211	17	17	..	..	102	..	1	..	..
Richland, Cambria county, ...	13,415	165	29	29	..	..	150	1	4	..	..
Rolling Mill, Cambria county, ...	241,804	271	325	325	..	7	1,062	5	25	5	..
Spangler, Cambria county, ...	1,000	20	15	15	..	..	10	..	2	..	..
Sumner No. 1, Cambria county, ...	38,831	135	98	98	..	..	150	1	5	1	..
Sumner No. 2, Cambria county, ...	23,985	223	48	48	..	..	200	2	3	1	..
Sonman No. 1, Cambria county, ...	100,000	170	136	136	2	2	334	2	13	1	..
Sonman No. 2, Cambria county, ...	63,039	198	101	101	..	..	300	..	11	..	20
Sonman shaft, Cambria county, ...	107,825	203	178	178	..	..	240	4	20	2	..
Sterling Nos. 8 and 9, Cambria county, ...	272,151	251	582	582	3	3	1,313	5	33	3	..
Sterling No. 10, Cambria county, ...	2,165	19	38	38	..	..	20	..	4	..	..
Sterling No. 11, Cambria county, ...	24,477	134	143	143	..	..	124	..	5	..	..
Sterling No. 12, Cambria county, ...	13,919	123	91	91	..	..	137	..	5	..	..
Trout Run, Cambria county, ...	27,368	111	70	70	..	..	200	1	8	1	..
Williams, Cambria county, ...	5,000	180	12	12	..	..	50	..	2	..	..
Webster No. 3, Cambria, ...	252,040	253	402	402	1	1	1,400	6	25	2	..
Yellow Run, Cambria county, ...	1,853	25	32	32	..	..	25	3	2	..	..
Total, ...	3,140,284	109,348	2,629,325	6,353	12	15	17,180	66	496	45	84

TABLE NO. 3.—*Showing the number of each class of employes at each colliery in the Sixth Bituminous Mine District during the year 1893.*

Names and Location of Collieries.	Number of Persons Employed Inside.						Number of Persons Employed Outside.						Grand totals—inside and out- side.		
	Inside foreman or mine boss.	Miners.	Miners' laborers.	All company men.	Drivers and runners.	Door boys and helpers.	Total inside.	Outside foreman.	Blacksmiths and carpen- ters.	Engineers and firemen.	Employed at coke ovens.	All company men.		Superintendents, book- keepers and clerks.	Total outside.
Alpha, Cambria county.	1	28	3	3	1	2	38	1	1	1	1	1	1	13	40
Argyle, Cambria county.	1	75	13	2	16	1	107	1	2	1	1	1	1	13	120
Aurora, Cambria county.	1	25	2	6	3	4	33	1	1	1	1	1	1	5	38
Anchor, Cambria county.	1	65	1	1	6	1	82	1	1	1	1	1	1	5	88
A. J. Haws, Cambria county.	1	24	15	1	3	3	28	1	1	1	1	1	1	5	36
Asherott, Cambria county.	1	125	1	1	1	3	130	1	1	1	1	1	1	5	136
Asheford, Cambria county.	1	16	3	1	1	1	18	1	1	1	1	1	1	5	23
Bethel, Somerset county.	1	40	3	1	3	1	49	1	1	1	1	1	1	5	54
Bear Rock, Cambria county.	1	59	2	1	1	1	65	1	1	1	1	1	1	5	70
Benton No. 2, Cambria county.	1	49	1	1	2	2	56	1	1	1	1	1	1	5	62
Benton No. 1, Cambria county.	1	17	1	1	2	2	20	1	1	1	1	1	1	5	26
Columbian, Cambria county.	1	5	1	1	1	1	7	1	1	1	1	1	1	5	8
Cresson shaft, Cambria county.	1	85	1	1	1	1	91	1	1	1	1	1	1	5	96
Caldwell, Cambria county.	1	75	4	1	7	1	93	1	1	1	1	1	1	5	99
Cymbria, Cambria county.	1	35	2	1	4	1	43	1	1	1	1	1	1	5	49
Columbia, Cambria county.	1	31	1	1	3	3	38	1	1	1	1	1	1	5	41
Cushon, Cambria county.	1	29	2	1	2	3	37	1	1	1	1	1	1	5	41
Conemaugh, Cambria county.	1	23	1	1	1	1	26	1	1	1	1	1	1	5	31
Continental, Cambria county.	1	90	14	2	18	3	114	1	2	2	2	6	3	11	125
Dunlo, Cambria county.	1	80	1	2	8	6	97	1	1	1	1	6	3	10	111
Dysert, Cambria county.	1	90	14	2	8	6	121	1	2	2	2	6	3	13	134
Dean No. 3, Cambria county.	1	44	3	1	1	1	49	1	1	1	1	1	1	5	54
Dean No. 4, Cambria county.	1	31	7	2	5	1	46	1	1	1	1	1	1	5	51
Delta, Cambria county.	1	49	2	2	3	1	57	1	1	1	1	1	1	5	62
Euclid, Cambria county.	1	114	8	2	2	4	128	1	1	1	1	3	3	16	144
Ellora, Cambria county.	1	49	2	2	3	1	57	1	1	1	1	1	1	5	62
Flanigan Run, Cambria county.	1	237	12	4	10	8	272	1	1	1	1	3	3	50	322
Galitzien shaft, Cambria county.	1	210	30	8	23	9	281	1	1	1	1	6	3	58	339
Gaulitzien shaft, Cambria county.	1	33	5	1	1	1	41	1	1	1	1	1	1	5	45
Gaulitzien No. 3, Cambria county.	1	151	14	3	10	1	180	1	1	1	1	4	3	58	238
Hastings, Cambria county.	1	81	3	1	6	1	96	1	1	1	1	10	1	1	103
Henrietta, Cambria county.	1	34	3	1	9	1	47	1	1	1	1	1	1	5	52

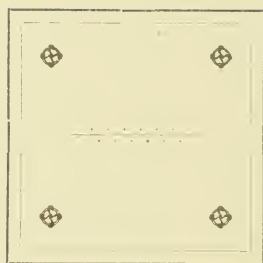
Ingleside, Cambria county, ...	50	3	4	4	2	64	...	1	...	...	...	1	...	1	...	67
J. C. Stinemar, Cambria county, ...	200	20	4	4	2	247	...	1	2	...	...	...	7	1	...	260
Krebs, Somerset county, ...	35	2	3	3	1	64	...	1	...	...	...	...	3	2	...	73
Lilly slope, Cambria county, ...	32	3	2	3	2	45	...	1	1	...	...	...	4	4	...	49
Lancashire No. 3, Cambria county, ...	24	4	2	1	...	31	...	1	...	...	...	...	...	...	...	33
Lancashire No. 4, Cambria county, ...	50	11	1	3	...	67	...	1	...	...	...	...	...	...	...	69
Lancashire No. 5, Cambria county, ...	29	1	...	...	...	22	...	1	...	...	...	...	...	...	...	24
Mineral Point, Cambria county, ...	23	1	...	...	...	31	...	2	1	...	...	...	...	...	...	37
Mission, Cambria county, ...	69	1	...	...	...	68	...	1	...	...	...	...	...	...	...	73
Neopit, Cambria county, ...	58	4	1	1	...	68	...	1	...	...	...	...	...	...	...	72
Oak Ridge, Cambria county, ...	43	2	1	2	1	50	...	1	...	...	...	...	...	...	...	53
Plain, Cambria county, ...	74	20	2	10	4	111	...	1	...	...	...	...	...	...	...	117
Puritan, Cambria county, ...	113	30	4	10	3	161	...	1	2	...	...	...	...	...	...	130
Purton Nos. 1 and 2, Cambria county, ...	125	2	1	5	...	134	...	1	...	...	...	...	...	...	...	139
Pierce, Cambria county, ...	24	4	...	3	...	32	...	1	...	...	...	...	...	...	...	34
Patton, Cambria county, ...	14	...	...	1	...	16	...	...	...	...	...	...	...	...	...	34
Richland, Cambria county, ...	20	3	1	2	...	27	...	...	...	...	...	...	...	...	...	17
Rolling Mill, Cambria county, ...	224	28	14	20	9	296	...	8	4	...	...	...	...	...	...	29
Spangler, Cambria county, ...	11	1	...	1	...	14	...	...	...	...	...	...	...	...	...	15
Summer No. 1, Cambria county, ...	74	10	1	6	...	92	...	...	...	...	...	...	...	...	...	98
Summer No. 2, Cambria county, ...	37	3	...	3	...	44	...	...	1	...	...	...	...	...	...	98
Sonman No. 1, Cambria county, ...	95	9	5	12	4	126	...	1	1	...	...	...	...	...	...	48
Sonman No. 2, Cambria county, ...	70	10	3	11	1	96	...	2	1	...	...	...	...	...	...	186
Sonman shaft, Cambria county, ...	142	3	3	16	3	168	...	1	...	...	...	...	...	...	...	101
Sterling Nos. 8 and 9, Cambria county, ...	485	15	18	15	10	555	...	5	3	...	...	...	...	...	...	178
Sterling No. 10, Cambria county, ...	33	5	3	1	1	34	...	...	...	...	...	...	...	...	...	582
Sterling No. 11, Cambria county, ...	125	5	2	3	2	138	...	1	...	...	...	...	...	...	...	38
Sterling No. 12, Cambria county, ...	15	3	2	2	2	88	...	1	...	...	...	...	...	...	...	143
Thompson Run, Cambria county, ...	50	3	2	2	2	169	...	...	...	...	...	...	...	...	...	91
William Co., Cambria county, ...	9	...	...	...	...	15	...	...	...	...	...	...	...	...	...	70
Webster No. 3, Cambria county, ...	218	30	8	18	10	235	...	2	3	...	...	...	...	...	...	12
Yellow Run, Cambria county, ...	16	1	2	1	...	21	...	2	2	...	...	...	...	...	...	302
Total, ...	64	4,701	402	138	391	5,700	8	73	30	134	238	91	564	6,354		

TABLE No. 4—List of fatal accidents which occurred in and about the mines of the Sixth Bituminous Mine District for the year ending December 31, 1893.

Date of accident.	Name of Person.	Occupation.	Age.	Widow.	No. of orphans.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 21,	Mike Governor, ...	Miner, ...	25	Yes.	2	Cresson Shaft, ...	Cambria, ...	Shot in the coal and afterwards went under a mine it again without spragging it up securely.
Mar. 1,	Mike Kirmehab, ...	do.	28	Yes.	..	Yellow Run, ...	do.	Crushed to death by a large fall of rock. It was a large horseback in the roof which ran in the same direction as the heading; the heading where accident occurred was not over ten feet wide.
23,	Henry Houser, ...	do.	24	No.	..	do.	do.	Killed by a fall of coal, by going to undermine it after having had a shot in it, without securing it with sprags.
April 4,	Joseph Smorey, ...	do.	23	Yes.	1	Webster, ...	do.	Killed by a fall of coal, crushing his head. Had a large piece of coal mined and no sprags in.
May 20,	John Perry, ...	do.	21	No.	..	Sonman No. 1, ...	do.	Crushed to death by a fall of coal, from sheer neglect in not securing the coal with sprags which is a violation of the rule of all mines.
June 17,	Peter Cerateene, ...	do.	40	Yes.	5	Dean No. 3, ...	do.	Killed by a fall of roof. Was drawing a pillar and had not sprung props set to make the place secure.
Sept. 14,	Mike Stello, ...	do.	24	No.	..	do.	do.	He was killed by a fall of rock and a little more care in the heading would have saved him.
Oct. 6,	A. Nicholas, ...	do.	27	Yes.	2	Sterling No. 8, ...	do.	Man's life might have been saved. Seriously injured about the body by a fall of slate or rock which proved fatal in two days after. It was not thought the accident was not serious and it was not expected to prove fatal.
23,	Mike Kokos, ...	do.	42	Yes.	..	do.	do.	Killed by a fall of roof while in the act of pulling it down to make the place safe.
Nov. 17,	Peter Geryo, ...	do.	23	Yes.	2	Cresson shaft, ...	do.	Killed by a fall of coal while undermining; he was badly crushed about the body, a slip was struck in the back of the ulning which left the coal down. A little more care in spragging would have prevented the accident.
Dec. 19,	James Greely, ...	do.	18	No.	..	Sonman No. 1, ...	do.	Killed by a fall of rock while loading a wagon. The piece of stone was about eleven feet long, two feet wide and about two feet thick. A slip was met with that could not be seen; consequently I consider this to have been an unavoidable accident.

TABLE NO. 5.—List of non-fatal accidents which occurred in and about the mines of the Sixth Bituminous Mine District for the year ending December 31, 1893.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of Children.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 21, 23,	John Martin. Andy Toleskie.	Miner. do.	38 30	M. S.	8 ..	Rolling Mill, do.	Cambria, do.	The small bone in his leg fractured by a fall of coal for the want of proper care in putting sprags under coal. Was burned by gas, which he ignited in some unknown manner as he had a safety lamp. He was burned worse than he would have been by returning back through the flames for his watch; disobedience and ignorance caused the accident.
Feb. 14,	Shava Michael,	do.	23	S.	..	do.	do.	Was pulling down some bony and a piece flew and struck him on the foot hurting him badly.
Feb. 18,	John Kaudras,	do.	34	M.	3	do.	do.	Hurt by fall of coal from neglect to secure it by using sprags.
Apr. 4,	William Robinson,	do.	18	S.	..	Columbia No. 4,	do.	Leg broken by fall of coal, had a loose end and no sprag under it to keep it from falling.
May 30,	Julius Baults,	do.	28	M.	2	Rolling Mill,	do.	Leg broken by being squeezed between loaded and empty wagons. He was without a light and got between the cars unknown to the driver.
June 13,	George Ballustie,	do.	30	M.	2	do.	do.	Shoulder blade broken by fall of coal. This was a pure accident, a slip in the back of the mining let down the coal, although it was spragged.
July 17,	George Geese,	do.	35	S.	..	Hastings,	do.	A severe contusion of the abdomen caused by a fall of coal while in the act of undermining in a pillar with both ends loose and no sprags under.
Aug. 4,	James Benton,	do.	70	S.	..	Lilly slope,	do.	Leg broken: was in the act of putting up a prop to secure a piece of rock when it fell.
Sept. 22,	Alex. Sanders,	Trip runner,	38	M.	6	Sonman No. 1,	do.	Leg broken by being caught in the rope at top of inclined plane.
Nov. 11,	S. M. Spencer,	Miner,	50	M.	..	Cymbria,	do.	Head slightly injured by fall of coal for want of spragging.
14,	Steve Revie,	do.	21	S.	..	do.	do.	Leg broken by fall of roof in room near crop where roof was weak. The place was not well timbered.
Dec. 6, 12,	John Wass, Michael Geisler,	do. do.	50 30	M. M.	.. ..	Rolling Mill, Webster No. 3,	do. do.	Arm broken due to negligence in not spragging coal. Leg fractured by a fall of coal by going under coal at the end of a shaft and in the same time struck his head down the loose coal and spragged his leg.
23,	Edward Bell,	do.	60	M.	..	Sonman No. 1,	do.	Leg broken by a fall of a piece of slate while he was loading a wagon.



SEVENTH BITUMINOUS DISTRICT.

(ALLEGHENY, WASHINGTON AND BEAVER COUNTIES.)

Hon. Thomas J. Stewart, Secretary of Internal Affairs:

Sir: In compliance with the Act of Assembly, approved May 15, 1893, I have the honor of herewith submitting to you my annual report as Inspector of Coal Mines of the Seventh Bituminous district for the year 1893.

The coal trade in this section has, since the general depression and disarrangement in business, been very dull and unprofitable, both to miners and operators, but the falling off of production is not as serious by any means as we expected.

The State Board of Examiners, at their last meeting, took a portion of territory from this district and included the same in a new district composed mainly of the mines adjacent to the Youghioghenny river. By taking the territory included within the boundary line of the district as at present arranged, and comparing the output of coal for the years 1892 and 1893, we find a decrease in production for the latter year of about 259,000 tons; while there would appear to have been an increase in the total number of persons employed in and about the mines of about 860. The number of tons of coal produced per life lost is less than that of last year, and the same may be said in regard to the non-fatal injuries, and while we deeply deplore this increase in the loss of human life and personal injuries, yet it is just what we had anticipated, for when we take into consideration the very large number of persons employed in the mines of this section who are incompetent to detect or to guard against the ordinary dangers surrounding the miners' occupation, it is not surprising that fatalities and personal injuries are numerous; and it is very difficult to instruct them as to what they should do to secure their own safety, because they are unable to speak our language and very few of them try to learn it, for in very many cases they are only here for the purpose of saving a few hundred dollars and then returning to their native countries to live upon the money earned in American mines and exported to foreign lands. But where such people are employed in our mines, common humanity should be a sufficient incentive for the parties employing them to use more than ordinary efforts to

protect their lives and limbs while so employed. The prevailing idea entertained by a large number of people, to the effect that a person who has never before seen a coal mine, can be turned loose in one and in a few weeks become a skilful miner, is a fallacy; for we have learned by experience that it requires years of practice before a man can arrive at proficiency in coal mining.

The number of deaths caused by falls of coal, roof and slate, was 19, and the evidence clearly indicated that 8 of that number lost their lives because they were incompetent to recognize the danger and knew not what course to pursue to secure their own safety, and 6 or 7 of the others were accidents which could have been prevented by proper care. A large proportion of the non-fatal accidents were also due to incompetency and lack of carefulness. As far as we were able to ascertain, it would appear that 9 wives and 18 orphans were deprived of husbands and father by the above fatalities, but four of the wives and 12 of the orphans are residents of foreign countries. There are a number of provisions in the new Mining Law which will, beyond doubt, be conducive to the better health and safety of our underground workers, notably the clause wherein it is provided that only a certain number of persons shall be permitted to work in the same air-current. This will necessarily cause a great improvement in the ventilation of some of the mines, and we trust it will be the means of causing some of our mine officials and operators to adopt a mode of distribution of the air-currents without the use of a multitude of doors which causes a constant disarrangement of the ventilation such as we find in a large number of the mines at the present time. I regret to say that this serious defect is quite as prominent in most of the mines recently opened, as in the older operations, notwithstanding that it is more expensive than a judicious system of air-bridges and plenty of air-ways would be.

The provisions requiring that in all mines where explosive gas has been detected, every working place must be examined each morning before the men are permitted to enter to their work, will, I feel assured, be the means of preventing some accidents from falls of slate and roof, from the fact that the persons making the inspection will observe any danger which may exist in the various parts of the workings, and can report to the mine foreman just where his presence is needed to secure the safety of the men under his care.

Speaking of the Act of May 15, 1893, as a whole, I think taking all things into consideration, that the law is nearly as complete as it was possible to make it and that we will need no further revision of the Bituminous Mining Law for a long time to come.

A brief description of the general condition of each mine is given in its proper place in this report. Included in this description, is

given the number of cubic feet of air in circulation in each mine (when last measured). This and the number of persons employed in the different mines (which number of employes can be obtained from the tables) being compared, will afford to the reader an opportunity to judge of the sanitary condition of the various mines in this district.

I have also described briefly the circumstances under which each fatal accident occurred. The usual statistical tables will be found in their proper order as part of this report, all of which is respectfully submitted for your consideration.

Yours respectively,

JAMES BLICK.

Total production of run of mine coal in tons of 2,000 lbs.,..	4,435,416
Total production of tons of coke, ...	3,000
Number of mines in district, ...	68
Number of employes inside, ...	8,697
Number of employes outside, ...	701
Total number of persons employed, ...	9,398
Number of persons killed in and about the mines,.....	21
Number of non-fatal injuries, ...	44
Number of wives made widows by above fatalities, ...	9
Number of orphans from same cause, ...	18
Number of tons of coal produced per life lost, ...	211,210
Number of persons employed per life lost, ...	443
Number of tons of coal produced per person injured, ...	100,805
Number of persons employed per non-fatal injury, ...	214
Number of horses and mules in use, ...	564
Number of steam boilers in use, ...	121

Cause of Accidents.	Fatal.	Non-fatal.	Widows.	Orphans.
By falls of coal, roof and slate, ...	19	24	9	18
By explosions of gas, ...	1	6	.....	.....
By mine wagons, ...	1	13	.....	.....
By miscellaneous causes, .....	.....	1	.....	.....
Totals, ...	21	44	9	18

DESCRIPTION AND GENERAL CONDITION OF THE MINES IN THE SEVENTH DISTRICT DURING THE YEAR 1893.

Mines on and Near the Monongahela River.

Bellwood.—This mine was in operation only for about three months during the year. When last inspected the workings were found in a fairly good condition. Quantity of air passing through the workings, 33,700 feet per minute, this being about the average capacity of the ventilating furnace.

Street's Run.—On my last visit to this mine, the ventilation in some parts of the workings was rather below the requirements; air in circulation 9,800 feet per minute. At the time of my last visit the mine was only being operated for about three hours each morning, after which the furnace was not fired, which is the cause of the ventilation being less in volume than usual.

First Pool.—This mine is now being developed very extensively, and is at the present time one of the largest producers in the district. The workings are ventilated in four sections or air splits; but the quantity of air in circulation is not sufficient, however, this defect will be overcome forthwith by displacing the present ventilator by a much more powerful one. Quantity of air in circulation when last measured, 33,000 feet per minute. The haulage is done by the head and tail rope system, branch ropes being operated to three different sections of the mine, all of which are working very successfully.

Becks Run and Hays Street Run No. 2 and 3 Mines have been idle throughout the year, but are expected to resume operations in the near future.

Walton.—On my last visit to this mine I found that the details in management necessary to insure the efficient ventilation of the workings were not receiving proper attention. The entries were being driven too far in advance of the air current and quite a number of the room pillars were not cut through at the proper distance, and besides, large volumes of air passing direct from the inlet to the return air-way, which should have been conveyed through the working parts of the mine. I have been informed since, that the above defects no longer exist and that the mine is now in good condition. Quantity of air passing at the outlets 33,000 feet per minute.

Knoxville.—This is a small operation employing at the present time about 16 persons. The product is sold in the neighborhood for domestic use. The condition of the mine is not of the best. At the time of my visit there was no fire in the furnace, consequently very little air was passing through the workings. It is only in the winter months that they employ a sufficient number of persons to bring the mine under the provisions of the Mining Law.

Ormsby.—Is in reasonably good condition; quantity of air passing at the outlet 31,900 feet per minute, the same being fairly well distributed to face of workings.

Castle Shannon.—The condition of this mine is improved since my last report. They have, during the year, erected a small furnace which will produce about 22,000 feet of air per minute, and as not more than 100 men are employed, this volume of air is sufficient if properly distributed.

Mines on the Little Saw Mill Run Railroad.

Enterprise.—On each visit made to this mine during the year the workings were found to be well ventilated and I saw no cause for complaint, in any respect, in regard to the condition of the mine. Quantity of air in circulation when last measured 127,500 feet per minute.

Venture.—This mine is not in good condition, the ventilation is very defective, and judging from the conditions, it would seem that the health and safety of the men are a matter of very small importance in the eyes of the management. The defect in the ventilation is of long standing. After having written a number of letters requesting that the matter receive attention, and receiving no assurance that any improvements were under consideration, I then, early in the past year, notified the parties interested that further delay would not be tolerated and that action would be taken against them unless they took immediate steps to remedy the matter complained of. After delaying action as long as possible by pretending to entertain doubts as to the proper location for a new ventilator, they finally ordered a new fan to be built (and I understood that the fan was built and ready for shipment in a few weeks, but I have heard nothing of it since). In the meantime they have been pretending to build the foundation for the fan and boilers and have enlarged the shaft at which the fan is to be placed. All this has been going on for the past nine months and to me it is very plain that while appearing to act there is nevertheless a well developed scheme of procrastination to evade the law as long as possible, notwithstanding the fact that the persons employed in the mine are at the present time, and have been for a long time past, working in an impure atmosphere to the detriment of their health and safety. We profess to have at least a limited knowledge of mining matters, and of the time necessary to accomplish a certain amount of work and will express a very decided opinion to the effect that the fan could have been put in operation and been forcing air through the mine in less than three months from the time it was ordered to be built. Quantity of air at the inlets when last measured 19,000 feet per minute, and by reason of the

large area of old workings adjacent to the main roadways, the above volume of air is not more than sufficient, in the summer season, to keep such roadways free from noxious gases, and in a fit condition for traveling, to say nothing about the working parts of the mine; and it would appear from present indications that the advent of a bountiful supply of pure air in this mine is not yet.

Fox.—The ventilation in this mine is far below the requirements in the summer season, but in cold weather nature operates in favor of the ventilating furnace and a fair current is produced. I have made a very urgent demand upon the operator to provide a more powerful ventilator before next spring and he has promised to do so. On my last visit to the mine I observed that the entries were being driven too far in advance of the air-current; also that several rooms were turned away ahead of the air-way. This is the usual mode of procedure and it seems hard to abandon old customs, but I informed the mine foreman that such proceedings would not be tolerated hereafter.

Mines on the Pan Handle Railroad.

Idlewood.—On my last visit I measured 13,000 cubic feet of air per minute passing in the return air-way, but only about one-half of this quantity reaches the extreme end of the workings. The roadways are generally wet and muddy. The mine has been operated very irregularly throughout the year.

Grant.—Is not in very good condition. In some parts of the mine I observed that the air-currents were not properly conducted forward to the face of the workings, but were allowed to escape to the return air-way by leakage through the imperfect doors and stoppings. The roadways are also wet and muddy. Quantity of air in circulation, 12,900 feet per minute.

Fort Pitt.—On my last visit to this mine it was found in good condition with a volume of 15,400 feet of air per minute passing through the workings.

Cherry.—Is in pretty good order, excepting in one section of the workings, which I found were driven too far in advance of the air-currents. They are now opening into a new territory of coal near to the mine entrance and in the near future most of the coal will be mined from this point. Quantity of air produced by furnace in the old mine, when last measured, 15,750 feet. The new development is well supplied with ventilation produced by a small shaft and fire basket which will answer the purpose until a permanent appliance can be provided.

Champion.—In the early part of the year the ventilation in this mine was below the requirements, but they have since built a new furnace which has considerably improved matters. On my last visit I

found the conditions favorable. Air in circulation, 17,820 feet per minute.

Nickel Plate.—They have sunk a shaft at the face of the mine and have erected a furnace to produce the ventilation, so that they have now discarded the fan as a ventilator. The fan which they have had in use has given very poor satisfaction for some time past, but the reason of this, was that it was too small to produce the necessary volume of air when running at a reasonable rate of speed, and because of its construction being so frail and imperfect, it could not be run at a high speed without constant danger of breakage and the consequent suspension of the ventilation. I have not yet had an opportunity to test the capacity of the new furnace, but, judging from the depth of the shaft and brick stack—which depth is 140 feet—and from the surrounding conditions which will all be favorable for some time to come, I should suppose that it will produce about 55,000 feet of air per minute.

Black Diamond.—This mine has changed hands during the past year and is now in much better condition than formerly. Quantity of air in circulation, 8,000 feet per minute.

Midway.—The old mine is abandoned and they are now opening up a new field of coal on the North side of the railroad. At the time of my last visit only a few men were employed driving entries. General condition of mine was satisfactory. Quantity of air in circulation, 10,000 feet per minute.

Primrose.—The condition of this mine was favorable when last inspected, they were at that time making preparations to erect several air-bridges with the intention of ventilating the workings in sections, and of removing as many doors as possible from the mine. Quantity of air passing at the outlet, 33,600 feet per minute.

Jumbo.—At the time of my last visit they were sinking a shaft at the face of the mine. This shaft will be used as an inlet for the air-current, and will enable them to ventilate the mine in sections, besides having the advantage of an inflow of pure air directly at the point where operations are in progress. Hitherto the ventilation in the main part of the mine has been conducted around the workings in one current, which is a great defect in a large mine, and when this system is once established, it generally takes some time to get the mine in such a condition as will admit of a change. Air in circulation when last measured, 60,480 feet per minute.

Brier Hill.—Is in very favorable condition, all parts of the mine being well ventilated. A new ventilating furnace has been erected during the past year which is giving very good results. Quantity of air in circulation when last measured, 52,640 feet per minute.

Laurel Hill.—Is not in very good condition. The territory formerly operated by this mine is now being worked by the No. 4 shaft, and all

the workings of No. 1 are now confined to a new coal field, Southwest of the old mine. This coal field is reached by passing through the main tunnel of an old mine which was abandoned about ten or twelve years ago. They have sunk a shaft at the face of the present workings which is used as an inlet for the air-current, and they will also put stairs in the shaft so that it may be used as an escape-way in case of necessity. The coal bed at this point is very undulating and good drainage can only be obtained with some difficulty, consequently the roadways are oftentimes wet and muddy. Quantity of air passing at the outlet, when last measured, 30,000 feet per minute, but the distribution of this air to the face of the workings was not very satisfactory.

Willow Grove.—The general condition of this mine is favorable. I found the workings pretty well supplied with fresh air, excepting one section where the in-take air-current had to pass through old workings before passing the men, causing it to be mixed with black damp. Quantity of air in circulation, when last measured, 39,000 feet per minute.

Star.—Is in rather better condition than formerly, but there is still plenty of room for improvement. There are only a few men employed at the present time. Nearly all the coal owned by the present operator is mined out and further extensions into the adjoining coal fields will become necessary, otherwise the mine will be abandoned in the near future. Air in circulation at face of mine, 6,500 feet per minute.

National.—The ventilation in this mine is produced by the heat of the boiler fires, assisted by exhaust steam from the pumps. In the winter this produces plenty of air, but in the summer season the power is not sufficient to maintain a good sweeping air-current, and I have suggested that a fan or furnace be provided. Air in circulation, when last measured, 12,000 feet per minute.

Oak Ridge.—At the time of my last visit the ventilation in one section of the mine was below the requirements, but they were at that time driving a new entry for a return air-way which would shorten the distance from the workings to the ventilating furnace, also give a much larger area for the air-current to pass through, which, when completed, should have the effect of a considerable increase in the total volume of air produced. When last measured, the quantity of air passing in the return air-ways was 10,800 feet per minute.

Boyd.—Is in reasonably good condition, excepting that a number of the men were still using crude oil direct from the oil well, the fumes from which contaminated the air-current to an injurious extent. Quantity of air produced, when last measured, 13,800 feet per minute.

Mansfield and Erie.—When last inspected was found in very bad condition. The part of the mine where most of the men were work-

ing was left almost entirely without ventilation. The reason of this was, I suppose, because it would require the expense of providing a door and a boy to attend to it, before the air-current could be conducted to the working places, and perhaps, too, the manager may have thought that he had hit upon a brilliant piece of economy in saving the above expense thus leaving the men to battle for a living in the midst of a poisonous atmosphere. I also observed that crude oil, from the oil wells was being freely used for lighting purposes. Hitherto not more than about 50 or 60 persons have been employed inside, but at the present time they employ nearly 80 men, and the capacity of the furnace is only about 9,000 feet of air-current per minute, which is not sufficient for the above number of miners. I gave the mine manager to understand very distinctly that the kind of management above described would not be tolerated.

Mines on the Chartiers Valley Railroad.

Mansfield No. 2.—After great perseverance on the part of the management, the condition of this mine has been brought up to a healthful state. A shaft has been sunk at the face of the mine as an inlet for air, and new air-ways have been made and a new ventilating fan provided. The size of fan is 18 feet diameter and 10 feet in width with two large side inlets. The makers claim that its safe average speed is about 150 revolutions per minute. At present it is run about 90 revolutions, producing at that speed 100,000 feet of air per minute, with a water gauge of $2\frac{1}{2}$ inches, which is a pressure of 13 pounds to the square foot of air-way, showing that the horse-power expended on the ventilation is 39.4. In the near future another shaft will be sunk at the face of the workings. This shaft will be on the opposite side of the territory from the one mentioned above, and will be used as a second inlet for the ventilation. This will probably admit of an increased volume of air-current without increase of water gauge, but on account of the large area of operations and the long distance the air has to travel, a high ventilating pressure will always be required to maintain the necessary volume of air.

Nixon.—Is in good condition. Several brick air-bridges have been erected with a view of splitting the air-current and to dispose of as many doors as possible. Quantity of air in circulation 40,000 feet per minute.

Leasdale.—Is in reasonably good condition. Air in circulation, 9,000 feet per minute.

Summer Hill.—At the time of my last inspection of this mine I measured 37,600 feet of air per minute passing through the main intake air-way, and an average of 10,000 feet per minute at the face of the butt entries. General condition is reasonably good.

Bower Hill.—This mine has not been in operation for several months past, but the workings were in good condition when last inspected. Quantity of air in circulation 37,360 feet per minute.

Bridgeville.—The ventilation in this mine is all right during the winter months, but is defective in the summer season. I have requested the operators to provide a more powerful ventilating apparatus so as to obtain sufficient air-current to keep the workings in a healthful condition during the summer months, when more coal is mined than at any other time. They use two fire baskets to produce the ventilation, each of them producing about 5,000 feet per minute.

Hastings Slope.—This mine is not in very good condition, as the ventilation is not up to the requirements. I also found several rooms turned away in advance of the air-current, contrary to law. I have suggested that they sink a shaft at the face of the mine to be used as an inlet for air, and it is also necessary that this shaft be sunk for an escape-way, for it would be very difficult to comply with the law by making a second passage-way from the present traveling shaft to the face of the workings, but the arrangements as above suggested can be made with very little expense, as only a very shallow shaft would be needed. Quantity of air in circulation, when last measured, 8,000 feet per minute.

Boon.—Is in fairly good order, but they have not mined much coal for several months. Air in circulation 24,000 feet per minute.

Allison.—The condition of this mine, when last inspected, was very favorable, all parts of the workings being fairly well supplied with fresh air which is produced by the use of a large fire-basket. When last measured there were 15,000 feet of air per minute passing through the mine.

Enterprise No. 2.—Most of the entries in this mine are being driven to the dip and a number of the working places are very wet. The water, as a rule, comes from the roof, which makes it very disagreeable for the workmen. This water probably comes from the old workings of an abandoned shaft mine which was operated in the adjoining property a number of years ago, but the present workings are several hundred yards distant from the workings of the old mine. I believe it is the intention in the near future to drive to, and tap the old works and pump the water out. The ventilation is good; quantity of air passing through the mine, 15,000 feet per minute.

North Western.—This is a new shaft opening, located near Bridgeville. In the early part of the year the mine was in very bad condition. The coal at this point is only a few feet below water level, and when they began to drive entries and to work rooms, there was no ventilation whatever in the mine and no provision would seem to have been contemplated to procure any kind of a ventilating ap-

paratus, until I called the attention of the manager to the serious condition of the mine atmosphere. A small fan of very limited capacity was finally erected and set in operation, but not until after the men had worked for some time in a very impure atmosphere which was unfit to sustain animal life with any degree of health or comfort. At the present time the workings are in reasonably fair condition. Quantity of air produced by the small fan, about 15,000 feet per minute.

Morgan.—They have provided a ventilating fan of the Guibal pattern, 16 feet in diameter, which is giving very favorable results. Before this fan was erected, the ventilation was produced by a fire-basket and exhaust steam from the pumps, and the air-current was not sufficient; but since the fan has been in operation there is no lack of air in any part of the mine, neither will there be, providing the details inside the mine are properly attended to. Air in circulation, when last measured, 26,600 feet per minute. This is a new opening and the workings are not very extensive, consequently the fan is only driven to about one-third of its capacity.

Standard.—This is also a new opening. Operations were begun a little over one year ago. Ventilation is produced by a 16 foot diameter fan made by the Vulcan Iron Company. The mine when last inspected was found to be in good condition. Quantity of air in circulation 48,000 feet per minute.

Creedmoor Shaft.—This is a new shaft opening. They commenced to mine coal a little over one year ago. The ventilation is produced by a fan 16 feet diameter and 8 feet wide and is intended to be driven at a high rate of speed. At the time of my last visit, the condition of the mine was favorable, with a good sweeping air-current passing through the workings. Quantity of air in circulation 60,000 feet per minute.

Ridgway Bishop.—The condition of this mine, when last inspected, was satisfactory, all parts of the workings being well supplied with ventilation. Quantity of air passing into the mine, 38,800 feet per minute, which is produced by a fan which was erected during the early part of the year. Size of fan 18 feet diameter and 9 feet wide. This is a high speed fan and can be driven safely up to 160 revolutions per minute, but at the present time it is only driven to about 50 revolutions.

Laurel Hill No. 2.—I inspected this mine on April 21st and found that the air-current at the face of the mine was not moving with sufficient velocity to keep the workings in a safe and healthful condition. Most of the entry workings were giving off small quantities of explosive gas. I examined the doors and stoppings along the main air-ways and found them badly out of repair and a large quantity of air

which should have been conducted to the face of the mine, was passing direct from the intake to the return. I directed the mine foreman to make the necessary repairs and to see that the air was properly conducted to the working places, also to see that the ventilating fans were kept running at as high a rate of speed as would be consistent with safety. I also notified the operator shortly after, that the two small fans in use were not capable of producing the volume of air required, and advised that they be displaced with one large fan. (I also advised that a large fan be provided when the second small one was placed in position about two years ago, but it appears that other advice was tendered to the effect that two small ventilators would be equal in results to one large one, and the cost would be much less, but when put into practice, this presumption was found to be wide of the mark, a fact well understood by persons with a reasonable knowledge of the principles of mine ventilation.) On June 10th I was notified of a man having been killed and another seriously injured by an explosion of gas (a full description of this explosion will be found in the accident list). At this time I made a very minute examination of all parts of the mine, and to my great surprise I found that since my previous visit a 4 foot steam line had been laid from the boilers on top of the shaft down to, and along the main in-take air-way into the body of the mine and there connected to a dilly engine which was being used to haul the cars from a deep swamp into the main entry. The heat from this steam line had raised the temperature in this intake air-way to about 128 deg. which caused almost a complete stagnation of the air-current in that section of the mine. I also found that several of the entries had just been driven to a fault which was giving off large volumes of explosive gas, the whole atmosphere of one section of the mine being very near the explosive point. Why the inside manager should be so lacking in ordinary judgment as to countenance such folly, and permit the mine to be brought into such a dangerous condition, is more than I can understand. Probably pressure may in some cases be brought to bear from without which may cause a person to act contrary to his own judgment, but when such action is liable to be detrimental to the health and safety of the employes and the security of the mine, he should in such cases (if necessary) firmly and absolutely decline to be governed thereby. As soon as I observed the dangerous condition of the workings I ordered the steam to be turned off the line and the withdrawal of the men from the section of the workings where gas was being generated in dangerous quantities. I also immediately notified the owner of the condition in which I had found the mine, and he at once ordered that operations should cease until the temperature of the main road should cool down, that the ventilation be restored and the workings put in safe condition. He also gave orders for a 20 foot Guibal

fan to be provided forthwith. After mining had been suspended for two weeks I again examined the mine and found that a great deal of repairing had been done in the shape of erecting new doors and stoppings and a good current of air was passing the face of the workings and all places were found free from standing gas, and I reported that the mine was then in a reasonably safe and healthful condition, and that mining could be resumed without further delay. Quantity of air in circulation at this time, 30,400 feet per minute. In July, operations were again suspended for lack of trade and the mine was idle from that time to the end of the year. In the meantime, the 20-foot fan has been placed in position and is ready for use when needed.

Laurel Hill No. 4.—On my last visit to this mine, there was plenty of air passing through the workings, but the main air-way was in very poor condition and needed considerable repairing. Some of the roadways are also very wet and muddy. Air in circulation, 60,000 feet per minute.

Mines on the P. C. & Y. Railroad.

Pan Handle.—This is a new opening, only commenced a few months ago, and as yet they have done nothing inside beyond entry driving. I inspected the mine once, and found the conditions favorable. The ventilation is produced by a 15-foot diameter fan, but the erection of this fan was not complete at the time of my visit.

Essen No. 1 is not in very good condition. The ventilation is rather below the requirements, but they are now making preparations to erect a more powerful fan so that the above defect will be removed in the very near future. Quantity of air in circulation 23,220 feet per minute.

Beadling.—They have sunk a new shaft which is used for the men to travel into and out of the mine, and as an inlet for the air current, and at the time of my last visit, they were driving a second passage-way to connect from the traveling shaft to the face of the mine. A great many improvements are necessary to bring the condition of this mine up to the requirements of the new mining law. The ventilation is far below the requirements, and it is imperative that something be done, without delay to increase the flow of air-current in the mine workings. Quantity of air in circulation, when last measured, 24,600 feet per minute.

Pittsburgh Fuel No. 2.—This is a new opening commenced about one year ago. During the early part of the year, the mine was in very bad condition. It would seem that the parties in authority had no idea that ventilation was an imperative necessity in the operation of a coal mine, and when they found that men could not mine coal without being supplied with air to breathe, even then, judging from their way of procedure, they did not consider that a second air-way was

necessary, but went on to develop the mine by driving all single entries and turning rooms up close to the face of the entries as quickly as there was sufficient space for them to be opened. Probably they had got a notion into their heads that the air-current should pass in and then pass out by the same route. On one occasion I went to the mine and found every miner, with five or six exceptions, working in rooms opened under the conditions above described, and in the entries in advance of such rooms, in the midst of an atmosphere which would destroy the strongest constitution in a very short time. Under such conditions I did as the law directs, viz: Ordered the men working in such places to cease work until ventilation was conducted to their working places. On my last visit the ventilating current was being conducted around the mine much better than formerly, but the conditions were by no means satisfactory. Quantity of air passing into the mine about 12,000 feet per minute, which is produced by a small furnace.

O. I. C.—When last inspected this mine was found in very good condition, excepting that some of the room pillars were not cut through at the proper distances. Quantity of air passing to the furnace 20,000 feet per minute.

Essen Nos. 2 and 3.—The No. 2 mine, when last inspected was in very poor condition, the ventilation being far below the requirements, and what little air was passing was not being properly conducted to the face of the workings. The ventilation in No. 3 mine was also found very defective. The fan at this mine is not capable of producing sufficient air to properly ventilate the workings of the one mine, yet part of the air current produced, has, during the past summer, been diverted to the workings of No. 2, causing the condition of both mines to be very unsatisfactory and very unhealthful. They are now making preparations to erect a fan at No. 2 mine. Quantity of air produced by the fan now in use, about 30,000 feet per minute, but if all the air was conducted to the face of the workings, the above quantity would be considerably less. On the whole it may be said that a great improvement is needed before the demands of the new mining law will be satisfied.

Federal.—This mine resumed operations last spring, after a shut down of several years. On my first visit the ventilation was very defective, but they have since provided a fan which will at the present time produce about 38,000 feet of air per minute. This fan will also be used to ventilate one section of the Essen No. 3 mine, as soon as arrangements can be made to that end. Both mines are connected and the ventilation can be divided without any detriment to the one, and with much benefit to the other.

Federal Spring.—When last inspected was found in pretty good order, excepting that the volume of air passing the face of the mine could be increased by repairing imperfect doors and stoppings, and giving a little more attention to the details in general. Quantity of air in circulation 17,600 feet per minute.

Beachmount.—Was in reasonably fair condition when last inspected. Ventilation is provided by a fan, the capacity of which is about 20,000 feet per minute.

Hickman.—On my last visit I found several places being worked too far in advance of the air-currents. In all other respects the conditions were favorable. Quantity of air in circulation 29,000 feet per minute.

Moon Run.—This mine is located at Moon Run and is the only mine that is opened on the Moon Run railroad. The workings are very extensive. The mine is located in the centre of a large tract of valuable coal property and is destined to become a large producer in the near future. The outside arrangements are very complete and permanent, and a large quantity of coal can be handled with a minimum amount of labor. The future developments inside will very probably be conducted on the three-entry system, so as to obviate the use of doors and to maintain an uninterrupted flow of air-current to the face of the workings. At presents the ventilation is produced by furnace power. The total volume of air in circulation, when last measured, was 66,000 feet per minute, but at the present time quite a number of doors are in use, consequently quite a large percentage of the air passing at the furnaces does not reach the face of the workings.

Beach Cliff and Montour.—These mines are on the Montour Run railroad and are both in a very favorable condition. Quantity of air in circulation in each mine, when last measured, 30,000 and 42,500 feet per minute respectively. At the time of my last visit neither of the mines were in operation and very little coal had been mined for several months past.

Mines West of the Allegheny River.

Pine Creek.—When last inspected, I observed that a considerable portion of the air-currents were lost through imperfect doors and stoppings before it reached the face of the workings, consequently the velocity of the current near the face of some of the entries was not as great as it should have been. Quantity of air passing into the mine 32,800 feet per minute.

Glenshaw.—Is at the present time employing fewer than ten persons, consequently it does not come under the provisions of the law.

Hite.—Is in fairly good condition. Quantity of air passing through the workings, when last measured, 15,000 feet per minute.

Breckenridge.—On each visit made to this mine its condition was found to be satisfactory. Air in circulation 13,000 feet per minute.

Natrona.—Is also in good condition. Each part of the mine receives a good supply of air-current. Quantity of air passing through the workings, 18,000 feet per minute.

Freeport.—This is a new mine opened during the past year. They have not as yet employed more than about fifteen men at any one time. Its condition, when inspected, was very unsatisfactory. There was very little air-current in any part of the mine, and at that time there was no artificial means employed to produce ventilation. The mine is idle at the present time and has been so for several months past.

DESCRIPTION OF FATAL ACCIDENTS FOR THE YEAR 1893.

Silvoi Barbero, mule driver, age 18 years, single, was fatally injured in the Moon Run mine on January 27th. He died three days after the accident. This was his first day to act in the capacity of mule driver in the mine, and he was in company with another driver for the purpose of familiarizing himself with the work and the roadways, before acting alone. When passing from a cross-entry into the main entry he went forward to open a door, and after the trip had passed through he again ran forward, either intending to pass the cars or to jump on the same to ride out, and in doing so went on the wrong side of the entry, where the space between the cars and side was very narrow, and he was caught between the cars and entry pillar, crushing his body to such an extent as to cause death as above stated. There was plenty of room on the opposite side of the trip, but it would appear that the deceased had not taken notice of the condition of the roadway at this point, or otherwise he thought that he could get on the cars before reaching the narrow place.

David Lombard, miner, age 18, single, was killed by fall of slate in his working place in the Montour mine, on February 14. This man was a stranger to coal mining, he only having worked in the mine a few weeks, but he was in company with a practical miner. They were working in a room with an open end, and the deceased was mining under a very dangerous broken piece of slate next the open side of the room. This slate should have been taken down or a prop set up to support it. The man himself was not competent to detect or guard against the danger and his buttty seems to have made no effort to protect him, otherwise he would not have permitted him to work in such danger, while he himself was working in a safe part of the room. The danger could easily have been seen and guarded against with ordinary care, and the man's death was due to the other miner's carelessness.

Joseph Rolbicke, miner, was killed in the Boon mine on March 6th.

by a fall of horse-back roof in his working place. This room had not been worked for several months and the man had only worked in it a few hours before he was killed. Upon investigation I found that there were no props in the room at the time of the accident, but the mine foreman had been in the room and ordered the man to take the slate down. If this had been done, or if props had been set to support it, then the accident would not have occurred. The mine foreman should have seen that the slate was taken down, or otherwise he should have ordered the man out of the place until the timbers were supplied him, for it is a well-known fact that when a room has been standing so long, extra care is needed to avert accidents when commencing to work it again. The deceased left a widow and five orphans in Germany.

Edward Carrick, a colored miner, age 28, single, was killed by fall of slate in the Federal Spring mine, on March 30. This man was working in a room and it would appear that he was working in a very careless manner, giving no heed whatever to the surrounding danger, otherwise he would have detected the dangerous condition of the overhanging slate which was cut loose on all sides by slips in the strata, and which were quite visible to the naked eye, as a portion of it had fallen down some time previously, which of itself should have been a warning of impending danger.

Angelo Zuphitti, an Italian miner, age 26, was fatally injured in the Essen No. 1 mine, by a fall of slate, on April 22d, and died in the hospital on May 4th. Two Italians were working together in a room which was driven about to its destination, and they had been told by the mine foreman to finish loading the car they had in the room and then to quit the place. Instead of mining the coal necessary to finish loading the car at the face of the room, they went back about 40 yards along the roadway, and commenced to take some broken coal from the room pillar, giving no heed to the fact that this broken coal was the only support for a large mass of broken slate immediately above it and extending partly across the roadway. It would appear that when the coal fell, the slate fell with it, striking the deceased with such force as to cause death as above stated. The men had only been in the country a few weeks and knew nothing whatever about the dangers of coal mining.

Jacob Schuster, miner, age 65, was killed by fall of slate in the Castle Shannon mine on May 6. This man was taking out a room pillar and the piece of slate which fell upon him was disconnected from the surrounding strata by a natural slip or separation. It would appear that the old man knew of the danger, for there were indications that he was in the act of setting a prop when the slate fell upon him, but he made the fatal mistake in that he did not set props under the

treacherous slate as soon as he took the coal from under it, for it was very evident that he had been working in extreme danger for some hours previously and that he only commenced to set the props after he perceived the roof giving way above him.

Wm. Scott, a colored miner, age about 47, single, was instantly killed by fall of roof and slate in the Willow Grove mine on May 9th. This man was also engaged in taking out a room pillar, and during the night the roof had caved in close up to face of coal, and the deceased was mining coal from under the edge of the overhanging loose roof without having taken the precaution to set props for safety. He had not been long working in this manner when a large piece of roof, weighing nearly a ton, fell upon him with above result. An accident under such circumstances was inevitable.

John Marks, miner, age 22, single, was killed by fall of slate in the Mansfield No. 2 mine on May 22. The piece of slate which fell on him was about six feet by four feet by five inches. It was evident, from an examination of the room, that the man was working in a very careless manner, there being a large mass of loose slate still hanging in a dangerous condition near the face of the room and not a prop beneath it for support. If the man had given any attention whatever to his own safety there was nothing to prevent him from recognizing the fact that he was working in extreme danger.

Peter Zuntini, an Italian miner, was killed in the Beachmount mine on June 2d, by fall of horse-back roof measuring 6 feet by 4 feet by 18 inches. There seems to have been one prop set under this loose piece of roof at its extreme end, farthest from the face of room, but the roof gave way to a natural slip close to the face of coal and the prop was thrown out of position. The roof in this particular room was of an exceedingly treacherous nature, requiring much care on the part of the miner in order to keep himself safe, but there did not appear to have been ordinary care used. Very probably the man was not competent to detect or to use the proper means to guard against the danger, otherwise he must have been very careless to risk his life under such a mass of loose roof with only one prop set under it for protection. So far as any information could be had, about the time he was last seen alive, would indicate that he must have been dead several hours before being discovered by the mine foreman when making his regular daily visit to the working places.

Alexander Morrow, miner, was fatally injured by explosion of gas at the Laurel Hill No. 2 mine on June 9th. He died in the hospital next day.

Henry Ceryrollis, miner, was also seriously injured by the same explosion. On my visit to the mine the day following the accident, I found that the gas was ignited on No. 1 butt entry at No. 7 room parting. I

also found that the man who had examined this part of the mine in the morning did not possess a certificate of competency entitling him to act as fire-boss, and I naturally supposed that the man was incompetent to detect gas, and at once inquired of the mine foreman why he had employed him for that purpose. His excuse was that one of his regular fire bosses had left him without notice and that he was only employed temporarily until a man with a certificate could be obtained. In order to test the man's knowledge of gas I took him into a place containing gas and told him to take the safety lamp and see if he could detect its presence, and the moment there was the slightest indication of gas in the lamp he called my attention to the fact, thus disproving my supposition. Upon further inquiry I found that he examined this part of the mine about 4.15 A. M. and that the explosion occurred at 7 A. M., fully one hour after some of the men in this same entry had gone into their working places. The man said that he found small quantities of gas at the face of No. 1 and 2 entries, and at the face of No. 7 room (this room was driven in about 60 yards from the entry and was standing at a clay vein or fault, but was not being worked at this time). He also said that he placed a danger signal on the entry about fifty yards outside of the gas, and that he saw the men who were working in the entry and reported to them that he had found a little gas in their working place, telling them not to take their open lights beyond the danger signal, but to use safety lamps inside of that point, at the same time giving them lamps for that purpose. This conversation occurred on top of the shaft about two hours and thirty minutes after making the examination of No. 1 and 2 entries and adjacent rooms. About 15 minutes after this conversation when the men were going to their work they fired the gas on the entry at No. 7 room and about 50 yards outside of the danger signal, a long distance from either point where gas was reported to have been found in the morning. When the gas was fired on the entry, the flame passed into and ignited that which had accumulated at the face of No. 7 room, but fortunately it did not pass to the face of the entry or the explosion would likely have been much more serious, for without doubt there was a much larger volume of explosive mixture accumulated at the entry face at this time than was found there in the morning. Now, the question naturally presents itself, how did the gas accumulate at the place where it was ignited between the time the fire boss made his examination and the time the men went to their work? I observed upon investigation, that the roof had fallen in on the entry at No. 7 room, leaving a cavity in the roof about 18 inches deep above the roof coal, which at this point measures five feet six inches from the floor, so that a person walking upright along the entry, with an open light on his head would ignite any gas which might have accumulated in the above cavity. I also found several

small feeders of gas coming in and near to the hole where the roof had fallen. I could find no accumulation of fire damp at this point while the air-current was circulating in its proper course, but I found that when the ventilation was cut off for a short time, quite a volume of gas would collect there. By a reference to the sketch submitted herewith, it will be seen that there are three doors connected with this part of the workings, either of which if left open, would cut off the ventilating current for the time being, and I very strongly incline to the opinion that one of those doors had been left open by some one going through it to his work after the fire boss had made his examination, or that the ventilating fans had not been kept running at their proper speed. The doors were forced out of place by the force of the explosion, so that I could not ascertain whether they would close by gravity previous to the explosion or not, but judging from the carelessness which seemed to be displayed in the management of the inside of the mine at this time, it is more than likely that one or more of the doors were in such condition that when pushed open they would remain in that position until closed by some one. At this time Nos. 1, 2, 9 and 10 butt entries were passing through a fault, which fault was throwing off large volumes of explosive gas, and a number of the rooms and face entries were also passing through clay veins and giving off fire-damp very freely. The mine foreman had since my visit of a few weeks before, allowed the ventilation to become so disarranged that the current of air passing the face of the mine was not sufficient to dilute and carry off the gas as fast as it was being generated at the face of the working places, consequently there was extreme danger hanging over the employes who worked in those parts of the mine where explosive gas was being generated. Either a lack of common judgment in mining matters or a display of gross carelessness on the part of the management was shown in allowing the mine to be in such an unsafe condition.

Stoung ReBerty, a Polish miner, was killed in the Boon mine by falling slate on June 20th. I was informed by the mine foreman that he was in this man's room shortly before the accident, and that he saw the danger and told the man to take the slate down, and that he made preparations to do so, but afterward disregarded the order and continued to work under the loose slate, and finally it fell upon him with the above result. The man had only worked in the mine a few weeks and knew nothing of the danger, or how to protect himself therefrom. He was 22 years of age, and single, so far as known.

Blaz Toucar, a Hungarian miner, was killed by fall of slate in Essen No 3 mine on June 21st. The piece of slate which fell upon him measured 7 feet by 4 feet by 10 inches, and was encircled by a natural slip which disconnected it from the adjacent strata, but the danger

could have been detected and the slate made secure by ordinary care. The man had one prop set under the loose slate which was insufficient and would appear to have been set in a very imperfect manner.

The prop was either accidentally knocked out, leaving the roof free to fall, or else it was thrown out by the weight of the slate. This man had worked in the mine for several years, but the general condition of his working place would indicate that he was incompetent to protect himself from the dangers connected with mining in this district, or that he was careless in matters pertaining to his own safety. He left a widow and four orphans in Austria.

Joseph Sickorski, miner boy, age 14, was killed by fall of coal in Nixon mine on July 26. This boy was working in a room pillar with his father, and the little fellow was undermining the coal from two loose ends to a clay vein, while the father was preparing a blast in the coal immediately above where the boy was working. As soon as the coal was bore in to the clay vein, it was left without support, and two lumps of coal, one about 1,600 pounds and the other about 100 pounds suddenly fell, the smaller piece striking the boy on the head causing instant death. The accident was due to the carelessness of the father in not setting a sprag under the coal to prevent it from falling while the boy was working under it.

Henry C. Fredrick, miner, age 38, leaves a widow and two orphans, was killed by fall of slate in the Nickle Plate mine on August 26th. The mine was not in operation at this date, but the deceased went into his working place about noon to load an empty car that was left in his room on the previous evening. It would appear that he had fired a shot the day before on the gob side of his room, which had dislodged the coal and also broke the overlying slate to a slip which destroyed its connection with the surrounding strata, leaving it entirely without support, and it seems that the man was either taking the coal from under this loose slate to load his car, or that he was sitting down directly beneath it when it fell upon him. The position of the body when found would indicate the latter. Why the man should be either working or sitting down in such glaring danger is beyond my comprehension and his mind must have been occupied with other matters, or he was grossly careless; however it must be said that the general condition of his room bore evidence of skill and care.

Victor Petroskie, a Polish miner, who leaves a widow and three orphans, was killed in Essen mine on September 7th, by fall of roof coal. The deceased at the time of the accident was taking out props from under the roof coal with the intention of taking it down preparatory to loading it in the cars, and according to the evidence of his partner, the man first took out the props nearest to the face of the coal and then went under the loose roof coal and com-

menaced to take out the back timbers, and while doing so, the coal fell upon him with the above result. The accident occurred in a room pillar, and the manner in which the man was taking out the timbers would indicate either that he was not competent to be entrusted with this kind of work, or that he was very careless in regard to his own safety.

Joseph Shincote, a Hungarian miner, was killed in the Pine Creek mine, on October 13th by fall of roof. It would appear that the man knew of the danger and was in the act of setting a prop for protection when the roof fell upon him. The working place, in general, was found in good condition and the accident seems to have been purely accidental.

William Bates, miner, age 36, leaves widow and one orphan, was fatally injured by fall of slate in the Mansfield No. 2 mine October 19th, and died November 1st. This man was taking down a piece of loose slate at the face of an entry, and was standing in front of a full car which prevented him from stepping back out of reach of the falling slate, consequently part of the slate fell upon him.

Orazis Franzosi, an Italian miner, was fatally injured by fall of coal and slate in Essen No. 3 mine, on November 14th, and died two days afterward. There were two Italians working in a room; they had fired two shots in the coal which had broken beyond the undercutting, and they then lay down under the broken coal to undermine the same, and as soon as they cut to the powder break, both coal and slate suddenly fell down upon Franzosi, crushing his legs and body in a fearful manner. If they had set sprags under the broken coal for protection the accident would not have occurred, but the proper thing to have done was to first undermine the coal and then if found necessary, blast it down afterward; but they had only worked in the mines about two weeks and knew nothing whatever about mining or of the dangers connected therewith.

Francizlk Glowacki, a Polish miner, age 30, leaves widow and two orphans in Austria, was killed in the Beadling mine by a fall of slate on November 30. This man and his buttly were making a cut through in their room pillar a few feet back from the face of their room. They had driven this cut through a distance of about 4 feet the previous day, and on the morning of the accident they had done no work beyond drilling a hole and firing a blast which did not dislodge the coal. It appears that the men went back to see what their blast had done, and as soon as they had got into the space from which they had mined the coal the previous day, a large piece of slate fell upon the deceased causing instant death. The slate fell from a natural slip on the strata which had been liberated by the work done on the

previous day. The weight of the slate was about 1,600 pounds. The man had only worked in the mines a few months and was not competent to detect or guard against the danger. In regard to this accident it must be said that if the requirements of the law had been complied with by the mine officials, in all probability this man's life could have been saved. This mine generates explosive gas and the law provides that every working place shall be examined each morning before the men enter to commence their work, and that all dangers discovered shall be at once reported to the mine foreman, whose duty it is to cause such danger to be removed forthwith. If the fire boss had made an examination of this particular working place on that morning, he would have detected the danger and in all likelihood the mine foreman would have caused its removal. The fault of this neglect did not lie with the fire boss, for one man could not inspect more than one-half of the working places in that section of the mine within the time allowed by law, and the fact must have been well known to the operator, besides, their attention was especially called to the above legal provision some time perviously, and a request made that the new mining law be complied with in every particular.

William Parry, miner, was fatally injured by fall of coal and slate in the Venture mine, on December 4th. He was working in a room pillar and had undermined the coal in the centre of the pillar, leaving a small block at each end for support, and, it appears, that one of those blocks gave way by reason of the great weight of coal and slate resting upon it, and as a result both coal and slate suddenly fell, part of it striking Parry, inflicting injuries which proved fatal six days after the accident. I was not informed of the occurrence until after the removal of the fallen coal and slate, as no one thought that the man was seriously injured until shortly before his death, but from the testimony given at the inquest it would seem to have been a purely accidental occurrence.

John Powell, a Polish miner, leaves a widow and one orphan in Austria, was killed by fall of slate in Mansfield No. 2 mine on December 6th. The mine foreman was in this man's room a few minutes before the accident, and he noticed that the slate was in a dangerous condition and told the man to take it down, and he was in the act of doing so when the accident occurred. It would also appear that he was standing under one piece of loose slate while attempting to take down the adjoining piece, and that both parts fell at the same time, injuring the man to such an extent that he died in about three hours afterwards. This man was a stranger to coal mining, having no idea of danger or how to protect himself therefrom.

TABLE NO. 1—Showing location, &c., of collieries in the Seventh Bituminous Mine District.

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Postoffice Address.
Allison.	Cook & Sons.	Washington.	R. M. Cook.	McGovern.
Bower Hill.	Imperial Coal Company.	Allegheny.	V. M. Delamater.	Imperial.
Beach Cliff.	do.	do.	do.	Imperial.
Beck's Run.	Munhall Brothers.	do.	John Minhall.	Munhall.
Beading.	H. G. Burghman, as trustee.	do.	Julius Essnot.	Redman Mills.
Bridgeville.	Beading Brothers.	do.	William Beading.	Beading.
Boyd.	A. J. Shulte.	do.	A. J. Shulte.	Bridgeville.
Beckmount.	Boyd Coal Company.	do.	Jesse H. Sanford.	Mansfield Valley.
Beckmount.	Beckmount Coal Company.	Washington.	E. T. Michael.	Hickman.
Brier Hill.	Patterson & Sauters.	do.	B. T. Hickman.	Yamonsburg.
Black Diamond.	Midway Block Coal Company.	do.	G. W. Schluenderberg.	McDonald.
Brakenridge.	Brakenridge Coal Company.	Allegheny.	Alfred Hicks.	Leachburg, Pa.
Castle Shannon.	Castle Shannon Railroad Company.	do.	O. A. Rogers.	50 Carson street, Pittsburgh.
Champion.	Robbins Coal Mining Company.	do.	G. W. Schluenderberg.	Penn. Building, Pittsburgh.
Cherry.	Heirs of Morris McCue.	do.	James Boyle.	Third ave. and Fry st., Pittsburgh.
Creedmoor shaft.	Hartley & Marshall.	Washington.	Beacher Hartley.	Banksville.
Enterprise.	Pittsburgh and Belle Vernon Coal Co.	Allegheny.	Thos. Renshaw and Wm. Baldwin.	1st. Essen; 2d, Federal.
Essen Nos. 1, 2 and 3.	Chartiers Block Coal Company.	Washington.	William McKiever.	Arden.
Enterprise No. 2.	Freeport Coal Company.	Allegheny.	T. G. Corneli.	Freeport, Pa.
Federal.	Thomas Fox.	do.	Thomas Fox.	121 Wabash avenue, Pittsburgh.
Freeport.	E. W. Powers.	do.	Griffith Williams.	Hickman.
Federal Spring.	First Pool, Monongahela Gas Coal Co.	do.	G. W. Schluenderberg.	Penn. Building, Pittsburgh.
First Pool.	Fort Pitt Coal Company.	do.	Samuel McCricket.	100 Penn avenue, Pittsburgh.
Fort Pitt.	Glenshaw Coal Company.	do.	S. W. Spencer.	Glenshaw.
Glenshaw.	Grant Coal Company.	do.	George Z. Hoosack.	Carnegie.
Grant.	H. G. Burghman, as trustee.	do.	W. Watson.	Hope Church.
Hay's Street Run, Nos. 2 and 3.	Hine Coal Company.	do.	W. J. Morgan.	Hope Church.
Hedges slope.	McKerrie Brothers.	do.	George McKerrie.	Little.
Hittes.	T. D. Steen & Company.	do.	T. D. Steen.	Idlewood.
Idlewood.	Pittsburg Consolidated Coal Company.	Washington.	G. W. Schluenderberg.	Penn. Building, Pittsburgh.
Jumbo.	W. P. Rend & Company.	Allegheny and Washington.	James McLachlin.	McDonald.
Knoxville.	Gregg Brothers.	Allegheny.	Stephen Gregg.	Woodville.
Laurel Hill Nos. 1, 2 and 4.	Imperial Coal and Coke Company.	do.	V. M. Delamater.	Imperial.
Leasdale.	Mansfield Coal and Coke Company.	do.	Daniel Boden.	Carnegie.
Montours.	Pittsburgh Fuel Coal Company.	do.	William Bulg.	Hemilton Building, Pittsburgh.
Mansfield and Erie.	Midway Block Coal Company.	Washington.	G. W. Schluenderberg.	Penn. Building, Pittsburgh.
Midway.	Moon Run Coal Company.	Allegheny.	N. F. Sanford.	Moon Run.
Moon Run.	Millers Run Coal Company.	do.	Joseph Brown.	Morgan.
Morgan.	National Coal Company.	do.	A. A. Hadden.	Nobletstown.
National.	Alex Block Coal Company.	do.	W. H. Linsley.	Joint.
Nixon.	Penn'a Salt Manufacturing Company.	do.	R. G. Ewer.	Natrona.
North Western.	Pittsburgh and Belle Vernon Coal Co.	do.	Peter Watkinson.	Bridgeville.
Nickel Plate.	J. D. Saniters.	do.	J. D. Saniters.	McDonald.
Omsty.	Joseph Keeling (estate).	do.	Peter J. Keeling.	South Side, Pittsburgh

TABLE No. 2.—Gives the total number of tons of coal mined and tons of coke produced in each colliery, number of days worked, number of employees, number of persons killed and injured, number of kegs of powder used, &c., in the Seventh Bituminous Mine District for the year ending December 31, 1893.

Names and Location of Collieries.	Total production in tons of coal.	Total production in tons of coke.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.	Number mine locomotives.
Allison, Washington county, ...	51,806	..	51,806	195	106	..	..	50	..	10	..
Bower Hill, Allegheny county, ...	42,958	..	42,958	190	198	..	..	100	..	11	..
Belwood, Allegheny county, ...	181,000	..	181,000	627	217	..	..	..	..	12	..
Reading, Allegheny county, ...	184,000	..	182,000	227	255	1	..	500	..	10	..
Beach Hill, Allegheny county, ...	65,650	..	65,656	170	134	..	..	100	..	8	..
Boys, Allegheny county, ...	45,821	..	45,821	170	82	..	..	..	..	..	..
Boys, Allegheny county, ...	35,045	..	35,045	200	76	..	..	..	..	4	..
Beachmont, Allegheny county, ...	63,200	..	63,200	270	116	1	..	..	..	5	..
Boon, Washington county, ...	46,386	..	45,106	164	108	2	..	..	..	6	..
Brier Hill, Washington county, ...	122,584	..	122,584	270	218	..	..	..	..	1	..
Black Diamond, Washington county, ...	15,717	..	15,776	180	46	..	..	285	..	11	..
Brakenridge, Allegheny county, ...	24,000	..	24,000	205	28	..	..	..	..	2	..
Castle Shannon, Allegheny county, ...	50,002	..	50,002	300	70	1	..	..	..	6	..
Champion, Allegheny county, ...	52,958	..	52,958	174	146	..	..	..	..	8	..
Cherry, Allegheny county, ...	75,045	..	74,990	187	92	..	..	..	..	8	..
Creedmore shaft, Washington county, ...	41,992	..	41,992	204	101	..	..	102	..	2	..
Enterprise, Allegheny county, ...	191,110	..	189,110	224	342	..	..	150	..	16	..
Essex No. 1, Allegheny county, ...	140,097	..	140,097	240	293	2	..	..	..	11	..
Essex No. 2, Allegheny county, ...	23,327	..	23,327	103	78	..	..	..	..	1	..
Essex No. 3, Allegheny county, ...	116,068	..	116,068	198	236	2	..	..	..	12	..
Enterprise No. 2, Washington county, ...	39,461	..	39,467	140	46	..	..	30	..	1	..
Federal, Allegheny county, ...	35,368	..	35,368	132	14	..	..	..	..	1	..
Freeport, Allegheny county, ...	18,592	..	18,592	275	14	..	..	..	..	1	..
Fox, Allegheny county, ...	50,288	..	50,288	160	179	1	..	..	..	1	..
Federal Springs, Allegheny county, ...	291,669	..	290,880	270	363	7	..	..	..	3	..
First Pit, Allegheny county, ...	30,186	..	30,186	168	40	..	..	..	..	1	..
Fort Pitt, Allegheny county, ...	..	..	..	..	..	..	..	..	..	5	..

Names and Location of Collieries.

[illegible]

* Estimated.

† No ovens reported.

28-10-93

28-10-93

TABLE NO. 3—Showing the number of each class of employees at each colliery in the Seventh Bituminous Mine District during the year 1893.

Names and Location of Collieries.	Number of Men Employed Inside.						Number of Men Employed Outside.						Grand totals—inside and outside.
	Inside foreman or mine boss.	Miners.	Miners' boys under 16 years of age.	All company men.	Drivers and runners.	Doorboys.	Total inside.	Outside foreman.	Blacksmiths and carpenters.	Engineers and firemen.	All company men.	Superintendents, bookkeepers and clerks.		Total outside.
Allison, Washington county, ...	1	62		2	4		68	1					69
Bower Hill, Allegheny county, ...	1	175	3	2	4	2	191					2	193
Belwood, Allegheny county, ...	1	160	24	5	12	6	199	1			12	1	217
Belwood, Allegheny county, ...	4	240	6	2	10		271	1					285
Beading, Allegheny county, ...	1	100	5	8	7		121		1				134
Beading, Allegheny county, ...	1	65	4	1	7	2	76		2			1	82
Beckville, Allegheny county, ...	1	63		3			71		2				76
Boyd, Allegheny county, ...	1	100		3	5	3	107		2				116
Beachmont, Allegheny county, ...	1	91	3	2	5		101	1	1	2	4	1	116
Boon, Washington county, ...	1	170	13	6	1	2	203	1	1	1	3	2	215
Brier Hill, Washington county, ...	1	24	1	2	4		42	1	1			1	47
Black Diamond, Washington county, ...	1	53	3	2	3		27						28
Brakebridge, Allegheny county, ...	1	50		3	4	1	59	1					61
Castle Shannon, Allegheny county, ...	1	100	8	12	5		129		3		6	2	149
Champion, Allegheny county, ...	1	73	4	2	4		85		3				92
Cherry, Allegheny county, ...	1	90	20	24	13		229		4	4	5		242
Credentoor shaft, Washington county, ...	3	234	14	3	10		255		3	2	3		263
Enterprise, Allegheny county, ...	1	233	15	2	3		253		1	3	2		263
Essen No. 1, Allegheny county, ...	1	195	5	5	10	3	223		2	1	6		232
Essen No. 2, Allegheny county, ...	1	75	12	5	10		102		2	1	3		118
Essen No. 3, Allegheny county, ...	1	75		2	4	2	85	1				1	96
Enterprise No. 2, Washington county, ...	1	75	4	2	4	2	88		1			2	96
Federal, Allegheny county, ...	1	11		2	4		17		1		3		21
Freeport, Allegheny county, ...	1	30		2	6		35						38
Fox, Allegheny county, ...	1	150	10	2	8		173				1		181
Federal Spring, Allegheny county, ...	1	280	35	7	19	2	344	1	1	4	10	3	363
Fred coal, Allegheny county, ...	1	55	2	2	3		63	1	2				70
Fred coal, Allegheny county, ...	1	9					14						14
Grant, Allegheny county, ...	1	100	7	2	8	3	121		1		6	1	134
Grant, Allegheny county, ...	1	168		1	6	4	182						182
Hickman, Allegheny county, ...	1	70		1	7		78		1	2	3	1	87
Hasting's slope, Allegheny county, ...	1	60	3		7		70		1				76
Hite, Allegheny county, ...	2	45	2		5	1	55						60
Hite, Allegheny county, ...	1	2				1	3						5
Hite, Allegheny													

Jumbo, Washington county, ...	1	158	20	10	15	5	249	1	4	5	13	3	26	235
Knoxville, Allegheny county, ...	1	14	27	7	1	7	16	..	..	..	..	..	..	16
Laurel Hill No. 1, Allegheny county, ...	2	137	15	12	15	7	296	1	3	8	32	2	46	302
Laurel Hill No. 2, Washington county, ...	1	157	15	12	15	10	293	..	2	9	9	1	26	274
Laurel Hill No. 3, Allegheny county, ...	1	160	13	11	13	2	200	..	1	9	5	1	16	214
Leak, Allegheny county, ...	1	22	..	2	2	..	27	1	1	..	2	..	4	31
Montours, Allegheny county, ...	1	100	5	3	7	..	116	..	1	2	7	3	13	129
Montours No. 2, Allegheny county, ...	1	300	20	8	13	5	347	..	7	4	17	2	30	377
Mansfield, Allegheny county, ...	1	58	8	2	4	1	74	..	2	..	..	..	5	79
Midway, Washington county, ...	1	25	..	..	3	..	29	..	1	..	..	1	3	32
Moon Run, Allegheny county, ...	2	420	6	6	17	5	456	1	4	..	15	2	22	478
Morgan, Allegheny county, ...	1	100	6	1	3	2	113	1	1	1	4	2	9	122
North Western, Allegheny county, ...	1	40	2	1	2	..	46	1	1	1	3	1	8	54
National, Allegheny county, ...	2	100	..	2	4	2	110	..	1	1	7	1	10	120
Natrona, Allegheny county, ...	1	30	3	2	6	1	43	..	1	2	3	..	6	49
Nixon, Allegheny county, ...	3	135	..	3	5	..	146	1	3	..	4	1	9	155
Nickel Plate, Allegheny county, ...	1	165	20	5	8	3	203	1	1	2	7	2	13	215
Ormsby, Allegheny county, ...	1	120	20	9	9	2	161	1	3	4	11	2	21	182
Oak Ridge, Allegheny county, ...	1	80	4	2	6	1	94	..	2	1	5	1	9	103
O. I. C., Allegheny county, ...	1	59	1	2	2	..	65	1	1	..	1	1	4	69
Pan Handle, Allegheny county, ...	1	20	..	4	1	..	26	..	1	2	2	1	6	32
Pine Creek, Allegheny county, ...	1	108	6	..	10	2	129	1	2	1	6	2	12	141
Pine Rose, Allegheny county, ...	1	131	16	13	2	1	168	1	1	1	13	2	18	204
Pittsburgh Fuel No. 1, Allegheny county, ...	1	187	..	..	4	..	186	..	..	..	3	1	5	166
Ridgeville, Allegheny county, ...	2	126	4	2	6	2	142	1	2	3	6	2	14	158
Ridgeville, Washington county, ...	1	86	7	2	5	1	102	1	2	1	5	..	19	111
Sumner Hill, Allegheny county, ...	3	240	..	1	8	1	253	1	3	2	4	..	263	263
Star, Allegheny county, ...	1	45	2	..	4	..	53	..	1	..	2	3	11	56
Standard, Allegheny county, ...	1	75	5	3	3	..	87	..	1	2	3	..	7	94
Venture, Allegheny county, ...	1	138	7	19	11	4	180	..	2	4	6	2	14	194
Walton, Allegheny county, ...	1	250	15	1	17	2	286	1	5	4	16	1	27	313
Willow Grove, Allegheny county, ...	1	148	15	6	8	2	180	1	2	2	9	2	16	196
Total, ...	79	7,365	457	252	435	109	8,697	33	112	111	373	72	701	9,638

TABLE No. 4—List of fatal accidents which occurred in and about the mines of the *Sacanth Bituminous Mine District*, for the year ending December 31, 1893.

Date of accident.	Name of Person.	Occupation.	Age.	Widow.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Feb. —	Silvol Barbero, ...	Mule driver, . .	18	..	..	Allegheny, ...	Fatally injured by being crushed between car and side of entry.
14,	David Lombard, ...	Miner, ...	18	..	..	do.	Killed by fall of slate in his working place.
Mar. 6,	Joseph Kolbicker, ...	do.	38	1	..	Washington, ...	Killed by fall of slate in his working place.
30,	Edward Carrie, ...	do.	28	..	..	Allegheny, ...	Killed by fall of slate in his room.
April 2,	Angelo Zuphetil, ...	do.	26	..	..	do.	Fatally injured by fall of slate in his working place.
May 6,	Jacob Schuster, ...	do.	65	1	..	do.	Died May 4th.
9,	Wm. Scott, ...	do.	47	..	..	do.	Killed by fall of slate in his room.
22,	John Mont, ...	do.	27	..	..	do.	Killed by fall of slate and roof in his room.
June 2,	Peter Zuntini, ...	do.	30	..	..	do.	Killed by fall of slate in his working place.
9,	Alexander Morrow, ...	do.	34	..	..	Washington, ...	Killed by fall of horseback roof in his room.
20,	Storing R. Berly, ...	do.	22	..	..	do.	Fatally injured by explosion of gas. Died the next morning.
21,	Blaz Tocarar, ...	do.	34	1	..	do.	Killed by fall of slate in his room.
July 26,	Joseph Sickoski, ...	Miner boy, . . .	14	..	..	Allegheny, ...	Killed by fall of coal; was working in a room with his father.
Aug. 26,	Henry C. Frederick, ...	Miner, ...	38	1	..	do.	Killed by fall of slate in his room.
Sept. 7,	Victor Petroskie, ...	do.	26	..	..	do.	Killed by fall of roof of coal in his working place.
Oct. 13,	Joseph Shincote, ...	do.	26	..	..	do.	Killed by fall of roof of coal in his room.
19,	Wm. Bates, ...	do.	36	1	..	do.	Fatally injured by fall of slate. Died November 1st.
Nov. 14,	Orasis Franzosi, ...	do.	..	..	..	do.	Fatally injured by fall of coal and slate. Died November 14th.
30,	Franciszk Glowacki, ...	do.	30	1	..	do.	Killed by fall of slate in his room.
4,	William Parry, ...	do.	48	1	..	do.	Killed by fall of slate in his working place.
	John Powell, ...	do.	46	1	..	do.	Fatally injured by fall of coal and slate. Died December 10th.

TABLE No. 5.—*List of non-fatal accidents which occurred in and about the mines of the Seventh Bituminous Mine District for the year ending December 31, 1893.*

Date of accident.	Name of Person Injured.	Occupation.	Age.	Married or single.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 14,	Charles Walimier.	Mule driver.	28	S.	Streets Run,	Allegheny,	Hand injured by cars passing over it.
27,	Guttop Tertie.	Miner.	27	M.	Bower Hill,	do.	Arm broken by a fall of slate.
Feb. 3,	John O'Neil.	Mule driver.	28	S.	Laurel Hill No. 1,	do.	Foot crushed between the cars, which left the track.
11,	Henry Porter.	Miner.	50	M.	Laurel Hill No. 2,	Washington,	Ankle joint dislocated and bone broken by a fall of slate.
Feb. —,	Turner Edmonds.	do.	25	M.	do.	do.	Slightly injured by being crushed between car and side of roadway.
4,	M. Jameh.	do.	29	S.	Nickel Plate,	do.	Ankle broken by a fall of slate.
10,	Charles Schucht.	Mule driver.	24	M.	Enterprise No. 2,	do.	Injured by falling under a trip of cars while in motion.
20,	John Cunningham.	Miner.	36	S.	Boyd.	Allegheny,	Seriously injured by a fall of slate.
20,	Henry Bolen.	do.	23	S.	Mansfield No. 2,	do.	Leg broken by a fall of slate.
April 5,	Mike Causnock.	do.	36	M.	Moon Run,	do.	Leg broken and back injured by a fall of slate.
11,	Thomas Milner.	do.	28	W.	Mansfield No. 2,	do.	Foot and arm broken by falling against friction wheel, while it was in motion.
16,	Emell Wathot.	do.	50	S.	Montours,	do.	Injured while trying to jump out of the dilly trip, when in motion.
May 4,	Hugh Maloy.	Miner.	27	S.	Champion,	do.	Leg broken by a fall of slate.
9,	R. Jackson.	Mule driver.	15	S.	Beadtling,	do.	Leg injured by falling under trip of cars, necessitating amputation at the knee.
17,	Alfred Dwyer.	Miner.	25	M.	Jumbo.	Washington,	Leg broken by falling under trip of cars.
23,	Thomas Vatri.	do.	33	S.	First Fool,	Allegheny,	While they were in motion.
25,	Hambria Wensoley.	do.	50	S.	Hastings Slope,	do.	Injured by a fall of coal while undermining.
June 1,	John Campbell.	do.	22	S.	Enterprise,	do.	Leg broken by falling slate.
3,		do.	22	S.	Champion,	do.	Arm broken and back seriously injured by fall of slate.
9,	Henry Cervrollis.	do.	25	S.	Laurel Hill No. 2,	Washington,	Seriously injured by an explosion of gas.
July 7,	Frank Dermatter.	do.	33	M.	Pine Creek,	Allegheny,	Injured by a fall of rock.
11,	Wm. Cambell.	do.	47	M.	Champion,	do.	Back seriously injured by fall of slate.
11,	Henry Real.	do.	42	M.	Jumbo.	Washington,	Injured by an explosion of fire-damp.

TABLE NO. 5. — *Continued.*

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
July 11,	Samuel Williamson, ...	Miner, ...	39	M.	Jumbo, ...	Washington, ...	Head injured; was struck by a door blown against him by the force of the same gas explosion.
17,	Patrick Navish, ...	Mule driver, ...	18	S.	Grant, ...	Allegheny, ...	Leg broken and hip dislocated by falling under a trip of moving cars.
22,	F. Shultz, ...	Miner, ...	22	S.	First Pool, ...	do.	Leg hurt by a fall of roof.
Aug. 18,	Fred Thomas, ...	do.	52	M.	Grant, ...	do.	Injured by a fall of slate.
23,	Chas. Burhal, ...	do.	34	M.	First Pool, ...	do.	Foot injured by a fall of slate.
24,	Tob Stars, ...	Mule driver, ...	19	S.	Morgan, ...	do.	Leg broken by falling under the cars when they were in motion.
Sept. 1,	Daniel McClan, ...	Miner, ...	54	S.	Venture, ...	do.	Leg broken by a fall of slate.
7,	John Brundle, ...	do.	55	S.	Beadling, ...	do.	Seriously burned in explosion of gas; he was placed in the mine, but went in during the night for some unlawful purpose, and fired the gas.
15,	E. Smith, ...	Miner, ...	53	M.	First Pool, ...	do.	Injured by explosion of gas; a heavy fall occurred where they were working, liberating gas from the roof and forcing it on to their lights.
16,	L. Gettin, ...	do.	50	M.	do.	do.	Foot crushed between cars.
18,	Wm. Hoffman, ...	Mule driver, ...	66	S.	Mansfield and Erie, ...	do.	Leg broken by a fall of coal.
Oct. 7,	John Pierarcher, ...	Miner, ...	22	S.	Nickel Plate, ...	do.	Body squeezed between car and side by attempting to ride on full trip.
31,	Jacob Butler, ...	do.	24	S.	Essen No. 3, ...	do.	Leg injured by falling under an empty car when it was in motion.
Nov. 7,	Frank Barlow, ...	do.	42	M.	Beach Cliff, ...	do.	Seriously injured by fall of slate.
27,	Alexander Millan, ...	do.	19	S.	Laurel Hill No. 4, ...	do.	Foot injured by fall of roof.
Dec. 5,	Robert Johnston, ...	do.	46	S.	Jumbo, ...	Washington, ...	Back injured by a fall of slate.
11,	Robert Wood, ...	do.	28	S.	First Pool, ...	Washington, ...	Back injured by a fall of slate.
12,	Wash Cozier, ...	do.	29	S.	First Prize No. 2, ...	Allegheny, ...	Leg broken by a fall of coal.
19,	Peter Morris, ...	do.	40	S.	First Prize, ...	do.	Collar bone broken by being squeezed between car and side of entry at his room parting.
27,	Joseph Goosick, ...	do.	38	M.	Beach Cliff, ...	do.	Back seriously injured by a fall of coal.
27,	Zack Mosquillo, ...	do.	32	M.	Nickel Plate, ...	do.	

Eighth Bituminous District.

(CENTRE, CLEARFIELD AND JEFFERSON COUNTIES.)

Hon. Thomas J. Stewart, Secretary of Internal Affairs:

Sir: I have the honor of presenting to you my report of the inspection of the mines of the Eighth Bituminous district, comprising a portion of Centre, Clearfield and Jefferson counties, for the year ending December 31st, 1893. It contains, in tabulated form, the names of all the collieries operated during the year, their location, the names of operators and superintendents with their post-office address, the total production and shipment of coal, in net tons, for each colliery, the number of days worked, number of persons employed and their occupation, and number of fatal and non-fatal accidents, number of kegs of powder, approximately, used, number of steam boilers, locomotives, stationary engines, horses and mules.

It contains also a description of the condition of each mine, stating whether drift, slope or shaft mine, by what method each is ventilated, and what system of haulage is used in each. Also what coal bed is being worked in each. Beds are designated as "A," "B," "C," "D," "E." "A," Lower Kittanning; "B," Middle Kittanning; "C," Upper Kittanning; "D," Lower Freeport, and "E," Upper Freeport.

I had intended also to state under the name of each mine at about what pitch or inclination the coal bed lies; but I can state here as a matter of information to those not acquainted with this district, that these mines are considered flat workings, as the coal rarely inclines more than three degrees, or about five and one-half feet to the hundred. I have measured in a few places where the bed was disturbed, an angle of five and a half degrees, or ten feet to the hundred. For the same purpose, also, I would state that all the mines of this district are considered non-gaseous, although I have found weak blowers of gas in six mines here, but in no case was there enough to cause alarm. There is therefore, no necessity for the use of other than open or naked lights in these mines.

This report will show the causes which led to the accidents, both fatal and non-fatal. The number of wives made widows and children orphaned thereby. It will show whether the accidents were preven-

table or not, as ascertained from investigation. The nationality of the persons fatally or otherwise injured, grouped as English speaking and non-English speaking. The number of tons of coal mined for each life lost, etc.

Respectfully submitted.

D. H. THOMAS,
Inspector.

Phillipsburg, March 12, 1894.

There are ninety-six mines reported here, but for the reason that a few of them have been consolidated, so that two or more come under one management, there are now in actual operation just eighty mines.

Total production in net tons of coal, ...	5,043,478
Total production in net tons of coke, ...	50,857
Number of mines in district, ...	96
Average number of days worked, ...	172
Number of persons employed, ...	9,423
Number of kegs of powder used (approx.), ...	17,743
Number of steam boilers, ...	104
Number of horses and mules, ...	913
Number of locomotives and stationary engines, ...	67
Number of miners, men and boys, ...	7,894
Number of tons mined per life lost, ...	252,174
Number of persons employed per life lost, ...	471
Number of wives made widows, ...	7
Number of children made orphans, ...	18

Accidents.

Causes of Accidents.	Fatal.	Non-fatal.	Total.
Fall of rock and slate, ...	8	6	14
Fall of coal, ...	5	5	10
By mine cars, ...	2	8	10
By coal and bone, ...	1	4	5
Explosion of powder, ...	1	2	3
By fall of prop, ...		1	1
By falling on iron rail, ...		2	2
Fall of parting slate, ...		2	2
Falling from trestle, ...		1	1
By having coal dumped on him, ...		1	1
Smothered by fumes of mine fire, ...	3		3
Totals, ...	20	32	52

Nationalities grouped as English speaking and non-English speaking as follows, to wit: American, German, English, Welsh, Scotch, Irish and Swedes are styled English-speaking; Slavs, Poles, Huns and Italians are non-English speaking.

The accidents are distributed thus: English speaking eleven fatal, non-English speaking nine fatal.

Herein there is further cause for complaint, in that the employment of this incompetent class adds fearfully to the number of accidents. It might be argued that nine to eleven is not bad showing. This would be true were there as many of this class employed as there are of the English speaking. In order to ascertain the exact number of such people at work in this district, I sent out the following circular to the mine foremen:

"To Mr.

Dear Sir: The accident reports for 1892, 1893, and 1894, show that over fifty per cent. of the fatalities in this district are among non-English speaking people. I desire to know what relation this percentage holds to the actual number of such people that are working as miners. Will you, therefore, fill out the attached card and return to me within one week? In view of the rapid increase of fatal accidents during the year that has passed, and so far this year, I desire, also, to call your attention to a real necessity for greater vigilance on the part of the mine foreman. If the first portion of rule 12, and the whole of rules 14 and 46, were strictly adhered to, I am satisfied that a reduction of accidents would result. I would ask you to enlist your interest in the welfare of your employes and their families. Renew your energy and vigilance, and let the safety and comfort of the workmen be your first and uppermost consideration."

From replies to which, I have learned that out of the 7,894 miners in the district, 1,282 are Slaves, 127 are Huns, 267 are Poles, and 159 are Italians, a total of 1,855, or 23.5 per cent. of the whole, while the accidents among them are 53 per cent. of the whole number. To obtain this result I have deducted from the number of accidents among the English speaking employes the three men who were smothered in West Eureka No. 6 mine, for the reason that they were in no wise accountable, or rather they had no control, in any manner, over the circumstances which led to the accident.

The following table will show whether or not any of the seventeen fatal accidents were preventable, and the nationality of the persons concerned:

	English.	Non-English.
Preventable by exercise of good judgment, ...	1	2
Preventable by exercise of ordinary judgment, ...	1	4
Preventable, for here gross negligence is seen, ...	2	2
Preventable had he obeyed his father, ...	1	1
Preventable had he remained at his post, ...	1	1
Preventable had the mine rules been obeyed, ...	1	1
Not preventable, inasmuch as more than ordinary care had been taken, ...	2	1

A study of this table will show that the non-English are not as competent as the English speaking, for in the first three preventable cases we have eight non-English as against three English speaking persons. The mine foremen could, if they would, help reduce the number of accidents. First, by selecting competent men for their work, and by placing competent men when extra care or judgment is to be exercised in the safe working of any place, particularly in the drawing of pillars. And, secondly, by making it their first and paramount duty to visit every workman while he is at work in his place, and visit, too, with the sole purpose of satisfying themselves that his surroundings are safe and comfortable, and if they find it necessary to order anything done to assure his safety, they should see that their orders are complied with. And in order to conscientiously discharge the very important duties of their responsible position, it is necessary that these visits should be made as frequently as possible. The law should not be construed to mean that a visit every alternate day is sufficient, but rather that it is imperative to visit every day, and more than once in the day if possible. In the investigation of the seventeen fatal accidents here reported, there were but two cases in which the mine foreman could say that he had just been in the place where the accident occurred. The common expression is, "Only yesterday, or day before, I was in this place."

A considerable portion of the Inspector's time in the latter part of the year has been taken up in distributing the "Mine Rules," and instructing mine foremen and miners therein, and again in distributing the "Mine Foreman's Record." There being considerable difference between the act of 1885 and of 1893, it would be natural to suppose that there would be some difficulty in becoming familiar with the provisions of the new act, and it will take some time to accomplish

this, so that it can hardly be said that we have derived much benefit from the new act as yet. That it is far superior to the act of 1885, and many years in advance, is accepted without any question, and good results will be obtained from the enforcement of its provisions.

The new law, like that of the act of 1885, requires that the coroner of the county in which an accident occurs shall be notified. This has not been done as a rule, for the reason that the courts of the various counties have repeatedly refused to pay for inquests thus held by coroner's juries. During the past year two inquests were held, however, by justices of the peace in Clearfield county, and in neither case were the costs paid by the county. In one case, to my knowledge, the company paid the costs to the members of the jury. In the case of fatalities resulting from the mine fire which occurred in West Eureka No. 6, on August 30 and 31, in which 3 persons, a father and his two sons, were smothered to death, it was the desire of the Inspector to have the coroner of Jefferson county hold an inquest, and he was requested to do so, but he made no reply to my communication, and a justice of the peace held an inquest. At this hearing every effort was made to place the responsibility, as parties interested on both sides were present. The miners being represented by the officials of their organization, and the company by their officials. Nothing was left undone so far as inquiry was concerned in trying to place the responsibility where it belonged. The result of this investigation, which took a considerable time to make, and the details of which would be of no particular interest to anyone, is as follows:

"We, the undersigned jurors, impaneled to investigate the cause of death of Moses Hughes and his two sons, Aaron and John, render the following verdict, viz: That the above named persons came to their death August 31, 1893, by suffocation from the accumulation of smoke in West Eureka No. 6 mine, owned and operated by the Berwind-White Coal Mining Co., situated in Young township, Jefferson county. The smoke being caused by fire, the origin of which is unknown.

W. W. CRISSMAN, J. P.,
THOS. D. DAVIES,
E. D. DAVIES,
S. H. MOONEY,
W. S. CAMPBELL,
T. M. MITCHELL,

Jury.

Having been requested by many miners to give in my report a detailed account of this accident, I submit a paper read on the subject, which has been reported by the "Colliery Engineer" for March, 1894.

Extinguishing a Mine Fire.

At the last meeting of the Western Pennsylvania Central Mining Institute, Mr. D. H. Thomas, Inspector of Mines of the Eighth Bituminous District of Pennsylvania, read an interesting paper on "The Methods Adopted to Extinguish the Mine Fire at West Eureka No. 6, near Punxsutawney, Pa." The fire broke out about midnight August 30-31, 1893.

This mine is opened with a double track slope 400 feet in length, and the main road continues the same width—about 12 feet—for a distance of 700 feet further into the interior of the mine. For a distance of over 300 feet, commencing at the foot of the slope and extending beyond the first right heading the roof was very poor, and the road was therefore double timbered with oak timbers 12 inches by 12 inches in thickness. Along this timbered section was the side track or turnout. When the fire broke out there were about 30 cars on this side track, and about half of them were loaded with coal. Mr. Thomas mentioned these cars in order to give his hearers a proper conception of the extent of the fire, and said that when the mind pictured 30 cars, half of them loaded with coal, the others filled with slate, fallen from the roof, and 30 sets of double timber all on fire and blazing, a good idea of the actual conditions that at one time existed, could be gained.

The mine was ventilated by an exhaust fan 25 feet in diameter, which during the night shift, when but few men were working, was run quite slowly, and circulated about 45,000 cubic feet of air per minute. The velocity at which this current was travelling was about 700 feet per minute.

It was not Mr. Thomas' intention to explain how to cope with a mine fire, but to show in his paper how one was extinguished. At the same time, after the experience gained at Eureka No. 6, he stated that the following points must be observed if success is to be assured:

There must be cool and collected minds, an incentive to action, determination, a spirit to command and lead, and willingness to obey orders. These qualities are present where many men are gathered, and all that is required is for each man to obey the orders of the one man who quickly and naturally exhibits the faculty of commanding and leading. One ordinary leader with plenty of good followers is better than many leaders with few and poor followers. It is not Mr. Thomas' intention to cast any reflection on the efforts of the brave men who endured the hardships of the first attempt to extinguish the fire, but they all admitted that if there had been but one leader their efforts would have been successful.

While the complete outfit of a fire company would be an expensive addition to the equipment of a mine, cases frequently arise where

the cost of such an outfit would be saved several times over in one year, if could be on hand when the fire breaks out.

Mr. Thomas stated that he had but one theory as to the origin of this fire, and it was that a spark from either the driver's or trapper's lamp fell on a coarse sack filled with shavings, used by the trapper to lie on during his idle time, at the door marked C on the map. This map being fanned by the air-current, soon blazed up and set fire to the door frame, which in turn set fire to the coal. In this connection, it is well to state that during the night shift the trapper did not remain at the door, but went about with the driver for company, there being but one driver on at night. This door was placed on the entrance to the "First Right" heading, and the last trip came out of that heading about midnight. The next trip was made to the main heading without any fire being noticed, and then a trip was made to the "First Left" heading. On returning from this trip the driver's attention was called to the fire by the two men who worked in No. 1 room of the "Back" heading on "First Right." These men had made their way out through the "Right Return" and the second cross cut inside to the main road. When they passed the door it was a sheet of fire. The trapper boy was immediately sent to give the alarm on the surface, and the driver went by way of the "Left Return" to notify the men in the "Third Left," the Main, and "Third Right" headings. On the arrival of these men on the Main heading they heard the noise made by men at the stopping in the first cross cut, between the Main and "Right Return," inside of the "First Right" heading. These men they released by removing part of the plank stopping. This was about 1 o'clock A. M. This ensured the safety of all the men at work that night but three, a father and two sons named Hughes. While the sad fate of these persons was contemplated with sorrow and deep feeling, any attempt to rescue them would have been suicidal. So with such means as they had at hand (buckets and powder kegs), these men carried water from the pump, and poured it on the fire. They were shortly re-inforced by other men with buckets, and shortly afterwards an attempt was made to connect a hose with the discharge of the pump. This was a failure on account of the connections not fitting, and a second hose and a reducer was produced. This also was a partial failure as it only served to bring the water to a point nearer the fire. The pouring on of water was continued, but it soon became evident that the flames were spreading in two directions, into the "First Right" and along the Main heading and "Right Return." At this time the thought occurred to some one to have the fan stopped, but this was of no advantage. Though the fire did not burn so fiercely, the smoke became stagnant and prevented the men working. The fan was, therefore, again started at a still slower speed and the men again renewed

their efforts. This work was kept up for many hours, and until the arrival of two fire companies, one from Tyrone and the other from Altoona. These companies stationed their engines at the side of a creek directly in front of the manway, with the intention of laying a line of hose from there to the fire. Unfortunately, neither hose was long enough and the rivalry between the companies would not allow the two lines to be joined as one. Finally a line was patched up with some hose brought from Punxsutawney, but the work of the steamer was rendered ineffective by the bursting of section after section of hose. Meanwhile the fire was rapidly gaining, and the fact that it had extended back as far as the point B in the Right Return made evident to the thoughtful men the serious condition of the men fighting it in the main heading. These men were inside of the cross cut, and unless the fire could be kept from the Main Heading it would mean suffocation to them. However, they continued to work and watch until by the burning of the stopping in the cross cut, the danger became so great that they abandoned their efforts to recover the bodies of the three men whose death at this time was a certainty. It was evident to all that it would be impossible for them to be alive in the portion of the mine where they were known to be.

It was then decided to seal up all the openings of the mine and use the fire engines to flood it. The flooding was in process when Mr. Thomas arrived at the mine some 36 hours after the fire had been discovered. The first words that met his ears were complaints against the brave men who had risked their lives to try and save their comrades, and fault finding with the methods they had employed. These complainers and fault finders, Mr. Thomas afterwards learned, had not given a particle of assistance in the way of work.

On his arrival at the mine, Mr. Thomas, by virtue of his position assumed charge of operations. After consulting the mine map and some of those who had worked fighting the fire, it was decided that inasmuch as all the air had been cut off for some time, there was no active fire in the mine. Thereon a determination to re-enter the mine was formed. This determination was not arrived at until after a long and spirited discussion, but finally all the active men present agreed that inasmuch as all the products of combustion were in the mine, they would naturally extinguish it. The question that then arose was, by what route should the mine be entered. The first idea was to enter by way of the manway, because the water was being pumped in at that point, which would tend to make it the natural intake. But, before entering there, it was necessary to remove the stopping on the main slope, which was a double brattice situated fifty feet from the mouth of the slope. To remove this was a serious undertaking, as, on account of the presence of smoke and carbonic acid

gas, a light could not be kept burning under the first set of timbers. The first attack was made with picks and one board was removed. A quick retreat to fresh air was then necessary. After a rest of some twenty minutes, one man with a rope around his body, and a strong hook with a rope attached, descended to the brattice. He fixed the hook in position and retreated to the surface. Then a strong pull, from many willing hands, successfully removed the stopping. A period of about twenty minutes then elapsed during which time the effect of the removal of the stopping on the smoky column was observed. It was soon evident that the removal of the gas was proceeding so slowly that a long time would elapse before the locality of the fire could be reached. The fan shaft was, therefore, ordered opened and the fan started. In about forty minutes the workers were able to reach the fire, and they were in position to do effective work. Two lines of hose was soon in operation pouring streams of water on the fire at different points, and in half an hour the fire was under control. A party was then sent to explore the inner workings and to repair all brattices that had been torn down, commencing by putting canvas stoppings in both cross cuts outside of the "First Right." Having ascertained that the temperature in the "First Right" was unbearable a cool current was sent in there by placing a canvas door on the entrance to the "First Right," one on the Main Heading, and one on the "Right Return." The erection of the stoppings on the two cross cuts outside of the "First Right," and the door at the entrance was very difficult on account of the intense heat in the piles of fallen slate. So intense was this heat that the water flowing away from the heaps was almost scalding hot. A current having been established Mr. Thomas and his associates made an attempt to explore the "First Right," but they only reached a short distance when they were compelled to retreat on account of the heat and bad air. About half an hour later another attempt was made, and this time they were successful in reaching the bodies of the three victims. The route taken as through the second cross cut inside of the entrance to "First Right" to the "Right Return." Thence back via the "Right Return" to the "Back Heading" and along it to the inside cross cut, and through the latter to the Main First Right Heading.

Mr. Thomas considered the attempt to enter this heading a very hazardous one, and before starting, charged his companions to measure well their power of endurance, and to be sure to retreat to fresh air the moment they felt that they had just strength enough left to return. He stated that he could not give the temperature of the air, but an idea of its height can be formed from the fact that the bodies had the appearance of having been roasted in an oven.

Mr. Thomas stated that an important matter in an undertaking of this kind was caring for those who are doing the work. In this case

great care was necessary to ensure safety from falls of roof where the timbers had been burned out, for, from three to six feet of roof had fallen, and it was falling continuously. Knowing that all the men would have to pass along the side track, and that they would pass by way of the center aisle, which was the most convenient as well as the most dangerous, sentinels were stationed along the road to direct all to keep close to the left side, and to avoid putting their hands on the cars or any other place where falling slate might catch them. The exercise of such care enabled Mr. Thomas to accomplish the work without the least injury to anyone. This and the fact that the principal part of the work was accomplished in the short period of six hours (between 3 P. M. and 9 P. M.) was a source of great satisfaction to him.

Continuing, Mr. Thomas said: "To those who may study the conditions as presented in this paper, other and better means of reaching the bodies may suggest themselves. I admit this probability, for we too, after the work was finished, could see how we might have done a portion of it in an easier and safer manner. But with such means as were at hand, and considering the limited time we had to study the situation, a good work was accomplished by our merely 'doing what we could.'" In conclusion he said: "Fixed rules cannot be given to govern mine fires; but much can be done to facilitate the extinguishing of fires both inside of mines and on the surface, if proper tools and materials are kept at the mine. The following articles should be on hand and in a convenient place: Several hundred feet of good hose with fixtures and reducers so that it can be attached to any pump in or about the mine; a few pickaxes, such as firemen usually have; handsaws; hatchets; plenty of nails; a dozen or more buckets; a couple of rolls of brattice cloth; plenty of boards, and a good supply of cement. With this material and the willing help of the men who are sure to gather at the first alarm, almost any mine fire can be speedily conquered. The mention of cement is to suggest the one fixed rule, viz: To seal up the part of the mine where the fire may be as soon as possible, for nothing extinguishes a fire so quickly as to cut off its supply of air."

Average Earnings.

It has been requested also that the average earnings of miners be given. This is a difficult matter to get at, for the reason that operators reporting the number of employes do not take the pains to give the average for each month. I have taken, however, twelve mines operated by the B. W. C. M. Co., which company has a system of daily reports that gives the exact number of each class of labor for each day

there is work. This, then, will be as accurate as it is possible to get. It should be noted, however, that these mines have worked better than the average, so that the earning will be higher than the district average.

Twelve mines, working 2,290 days and employing 1,517 miners, produced 1,165,839 net tons, which gives to each miner 768.5, an average of 4.35 tons per day worked, the average number of days worked being 174.

768.5 tons at 45c per ton,..... \$345 82

I have compared these figures with those of miners in other mines, that have worked every day that there was work for them, and I find that the above sum is \$100 in some cases above the earnings of those men. Presuming that the returns of the number of men employed in each mine are correct, I find that the number of tons net per man for the year would be 639; this, at 45 cents, equals \$287.55. The average number of days worked being 172 gives the miner \$1.67 per day. This sum, after all, must be very near the average earnings—a sum inadequate to keep a single man and entirely so to support a man with a family—\$23.96 per month.

During the past year there were no serious violations of the mine law on the part of any of the operators. On account of the law being new, however, there were several cases in which attention of operators had to be called—more for explanations than reprimand. I am pleased to say that I find the operators as a rule very willing and ready to comply with the provisions of the new Act. I am pleased, also, to say that the miners and other workmen in the mines are satisfied that they have an increased protection under this law, which the law of 1885 did not give them; and what is still better, they appreciate it. The following is a copy of the sheet that is now used in this district by the miners in ordering their timber supply, and it is a great improvement over the “blackboard” formerly used. The sheet is twelve inches long and nine inches wide, and after being checked off is preserved in the office for thirty days:

Colliery.

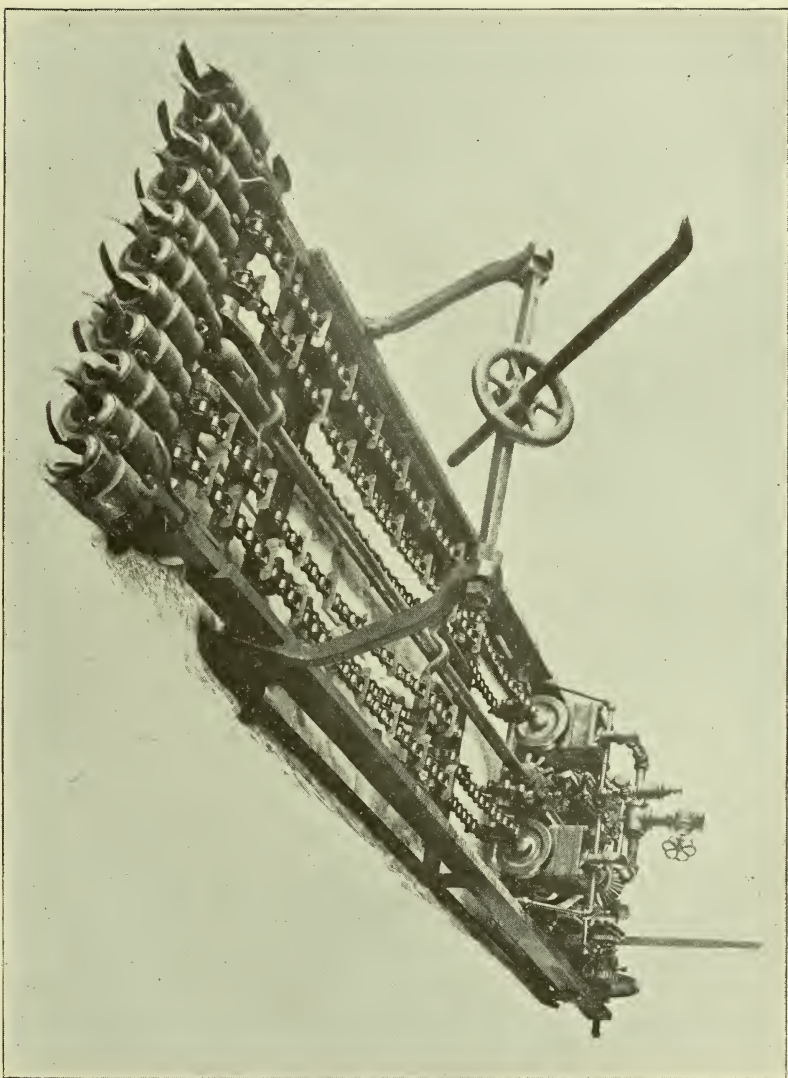
Number.	Name.	Props.			Cross Bars.			Ratts.	Ties.	Sprags.
		No.	Feet.	Inches.	No.	Feet.	Inches.			

This sheet has been in use by the B. W. C. M. Co. for a number of years, and has always proven satisfactory. To the credit of the company be it said, they are always in advance in accommodating and protecting their employes, and they are always first to adopt any mea-

sure required by the mine law. A noted example of this is in the fact that they have supplied all their mines with barometers and thermometers, so that their foreman can fill out the record book complete. They have also supplied all their mines where they have fans with good pressure gauges. I enclose with this report a photograph of a mining machine which is the invention of James Passmore and Peter A. Arp. The inventors claim several advantages over all other machines. The machine was first made to cut to the depth of six feet, which it has done on trial in two minutes and forty seconds, and in very hard mining coal in three minutes. It is built in about the same shape as the Jeffry machine, but cuts the coal by revolving augers, eleven in number. It is being rebuilt at present to cut four feet deep instead of six feet; by this arrangement the entire machine can be made to operate in a space of six and a half feet between the coal face and props. It is also being fitted with a set of wheels that can be thrown into action so as to move the machine about easily.

I am pleased to say that the hospital at this place, the State institution, is still doing excellent work. During the last year it received an appropriation of \$18,000 from the State, which was just about enough to free it from debt previously contracted. There is now a complete laundry attached, where all the washing, ironing and drying are done by steam—a very necessary adjunct to a place of this kind. The surgeons in charge are now paid for their services, or at least their services are recognized to a certain extent, which is a great advance over the old method of requiring gratuitous service. The faculty now consists of three surgeons: Dr. L. C. Harman, chief; Dr. W. W. Andrews, and Dr. W. B. Henderson, assistants. The accomplished lady, Miss M. A. Fisher, is still superintendent, and it is the wish of all who have been her patients that she may long enjoy life. Below is a list of the work of the hospital during 1893:

Total number of patients from January 1, to December 31,	
1893, ...	117
Recovered, ...	100
Improved, ...	6
Unimproved, ...	3
Deaths, ...	8
Miners treated, ...	54
Railroaders treated, ...	11
Other occupations, ...	52
Amputations, major, ...	3
Amputations, minor, ...	7
Operations, major, ...	35
Operations, minor, ...	36



Coal Cutting Machine.

Fractures of femur, ...	5
Fractures below knee, ...	11
Fractures of arm, ...	4
Fractures of skull, ...	5
Other fractures, ...	8
Burns, ...	6
Other injuries, ...	56
English-speaking patients, ...	85
Non-English-speaking patients, ...	32

DESCRIPTION OF THE CONDITION OF THE MINES OF THE EIGHTH BITUMINOUS DISTRICT.

Clearfield County Mines.

Acme.—This mine is being worked on the "B" bed of coal, ranging in thickness from three feet to three feet six inches, with a bone about one foot thick on top. It is a drift mine, having an endless rope system of haulage. Was badly opened, inasmuch as the haulage road is very low. It is now being ventilated by a ten-foot Brazil fan, and a shaft outlet for one side of the mine. Both fan and shaft are improvements made this year. Quantity of air circulating is about 30,000 cubic feet. General condition is now good. James Scurifield, mine foreman.

Alexander.—A mine of small capacity, working on the "B" bed. Mule haulage. Furnace ventilation, circulating about 9,000 cubic feet, which is plentiful for the number of men at work. The coal here ranges from three to four feet six inches. The opening is a drift with a short plane outside to let the coal down to the shutes. The mine is in a far better condition than it was a year ago. Thomas Blyth, mine foreman.

Atlantic 1.—This mine is extensive, working the "D" bed, which varies in thickness from two feet eight inches to seven feet. It is being ventilated by a Brazil fan, exhaust sixteen feet in diameter, and notwithstanding that a great volume of black damp is given off from the extensive caves, is now well ventilated, the fan circulating about 75,000 cubic feet per minute. It is a drift mine, having an endless rope system of haulage. Great quantities of water are being pumped out of the mine during the spring and fall rains. It is in a good sanitary condition. Jonathan Hutchinson, mine foreman.

Atlantic 2.—This mine is working the same tract of coal as No. 1. It is one of the model mines of the district. Is ventilated by a Brazil fan twelve feet in diameter, acting as a blower. There are six divisions of the air current, which gives about 6,000 cubic feet to each division. Pumping is done by compressed air instead of steam. The haulage is by endless rope. One side of the mine is very dry and

dusty. Coal cutting machines were formerly used here, but have been taken out. This mine is always found in good condition. William Pollock, mine foreman.

Baltic 1-2.—Are both drift mines working "D" bed, from two feet six inches to four feet thick. The ventilation is by furnace in No. 1, and it has sometimes been found rather defectively ventilated. The furnace is not as well located as it might be, and the shaft is too shallow. No. 2 has usually been ventilated by natural means, and it is now about finished. Haulage is by mule power, and in No. 1 it is a very bad and long haul.

Baltic 3.—No. 3 is working on bed "E," about three and one-half feet thick. This is also a drift mine, the coal having been dumped on the same dump as No. 1, but is now being dumped separately. Ventilation is by furnace, and of late has been in better condition than formerly. Haulage is by mule power. W. J. K. Irvin, foreman.

Bessemer.—Very little work was done at this mine during the year on account of the coal bed, "D," being too croppy to sell during the depressed state of trade. It is a drift mine, natural ventilation, mule haulage. The quantity of air very irregular and often insufficient; roads having been driven through caves, are not as safe as could be desired. Condition in general, therefore, is not up to the standard. Charles Rodden, mine foreman.

Champion.—Is a drift mine, working bed "D," about four feet six inches in thickness. Haulage by mule power. Ventilation natural and, of course, irregular and unreliable. As it was nearly finished, I did not insist on any improvements other than to have escape holes made for the men to reach the surface easily to avoid the mud and danger of the haulage roads. I think it will hardly be worked again under the law. A. P. Isenberg, mine foreman.

Coaldale 3.—This is rather a slope mine, the grade into the mine for some distance being just enough to carry the empty cars dragging the rope after the trip; the system of haulage being one main rope. Further in the mine, a stationary engine is placed to haul the empties up a plane, the loaded trip here dragging the rope after it. The coal is bed "D," from four feet to four feet six inches in thickness. The ventilation is by furnace and the heat of a boiler at the foot of a shaft where water is being pumped. The quantity of air has been variable, one side of the mine being frequently insufficiently ventilated; the other side being found generally in a healthful condition. James Dunsmore, mine foreman.

Coaldale 5.—Here we have a drift and a slope, both working bed "D," about four feet six inches thick, at a considerable difference in elevation, the dip being a natural one into the basin where the slope is located. The haulage in the slope is by main rope, while in the drift it is by endless rope. Ventilation, in both cases, is by furnace.

In the drift it was found good, but on two occasions it was found insufficient in the slope. James R. Fleming, mine foreman.

Colorado 1-2.—No. 1 is working the "D" bed in good shape, about four feet six inches thick. The haulage is by mule power and is very long. The ventilation is by furnace, having two intakes, the drift mouth being the natural intake for cold weather, while another opening on a much higher level serves for warm weather. The quantity of air circulating varies, according to the weather, from 10,000 to 20,000 cubic feet; it is generally found in good condition.

No. 2 is a drift mine working bed "E," from three and a half to four feet thick, an unusual good shape for this bed. The haulage is by mule power. The ventilation is by furnace, there being three distinct divisions of the current, from 5,000 to 7,000 cubic feet in each. This mine is always in good condition. Thomas R. Pilkington, mine foreman.

Colorado 3.—This mine, working bed "B," from three to three and a half feet thick, with a bone on top. Haulage is by mule power, but the intention is to put in a rope haul of some kind. The ventilation is by furnace. There are two distinct currents. I have found it always in good condition. Richard Morris, mine foreman.

Columbia 5.—Drift mine, working bed "D," considerably troubled by rock rolls in roof, the coal varying in thickness on this account, from two and a half feet to four feet. Haulage is by mule power. Ventilation by furnace, which is hardly powerful enough for the crooked and uneven surfaces of this mine. The quantity found at the furnace has been from 10,000 to 16,000 cubic feet. I have not at any time found the entire mine well ventilated. Frank Smith, mine foreman.

Cooke's.—This mine is a drift, working a bed of cannel coal about four feet in thickness. This is bed "C." The haulage is by mule power, with a tram-road over a mile long, over which the coal is delivered to the schutes. Ventilation is by furnace and is sufficient for the number of persons employed, but I had occasion to stop a few places in the mine at one time, for the reason that the air-current was not kept up to where the men were at work. H. C. Williams is mine foreman at present writing.

Decatur 1-2.—Both these drift mines are now under the same management, having been thus connected so as to comply with the law. The "D" bed is worked here, from four to six feet in thickness. The haulage is by mule power; the ventilation by furnace. The No. 2 mine has always been found in good condition; not so, however, with No. 1. There has been no work worth mentioning here since May, 1893, since which time a change in management has taken place, and much work has been done in the line of improvement, so that on my next visit I expect to find a much better condition of things. The fur-

nace is entirely inadequate to furnish ventilation, particularly in the summer. John E. Hawkins, mine foreman.

Derby.—Drift mine, mule haulage, furnace ventilation. Only a few men at work drawing out pillars; will finish shortly. The coal is bed "D," about four and a half feet thick.

Eureka 5.—This is a slope mine working the "D" bed, ranging from two and a half feet to five feet in thickness. Haulage to foot of slope is by mule power, then by main rope, the slope being steep enough to carry a single car and the rope down. The ventilation is by a Brazil fifteen feet forcing fan. There are three distinct currents of air, the least being about 7,000 cubic feet. The fan circulates about 30,000 cubic feet. This mine has shown a little gas, but not enough to cause any alarm. It is well managed and is always found in a good, healthful condition. Thomas D. Forsyth, mine foreman.

Eureka 7.—This is a shaft mine, 175 feet in depth, working "D" bed, which varies from two and a half to five and a half feet in thickness. The haulage is by mule power. The ventilation is produced by a twelve-foot forcing fan, there being three distinct currents of air. The ventilation was considerably improved this year by enlarging the overcasts. The roof here is of a treacherous nature, there being a bed of fire-clay over the coal, and it requires great attention. There is a tendency to great dryness in this mine, and while no gas has been detected, it would not be a surprise if it were. The quantity of air in circulation is about 30,000 feet. Thomas A. Estep, mine foreman.

Eureka 8.—This is a drift mine working the "D" bed, varying from two and a half to six feet in thickness. It is almost entirely on pillar work now. The haulage is by mule power. The ventilation is by furnace, or rather furnaces, for during a portion of last summer there were three furnaces going at the same time, and even then the condition was nothing to boast of. A large volume of air was had at two of the furnaces, and if they had been kept burning briskly all the time the condition would have been quite different to that in which it was found on two visits in particular. James S. Kirkwood, mine foreman.

Eureka 9.—This mine consists of a slope and a drift, very little work having been done in the drift. Both places are working the same coal, bed "D," varying from two feet to four and a half feet. The haulage is by mules to foot of slope, then by main rope. The ventilation is by furnace, and though there is but one current, every place is generally found in a good, healthful condition. I have measured 25,000 cubic feet at the furnace. John Allen, mine foreman.

Eureka 11.—This is a drift mine working what is supposed to be the "D" bed, varying from a few inches on one side to five and a half feet on the other. The haulage is by mule power. The ventilation is by furnace. There is generally a good air current circulating, but being only a single current, it did not leave the mine in a healthful condi-

tion. An overcast was suggested so as to make another division, which, I learn, has been put in with the result anticipated.

Eureka 12.—Is a drift mine working the "D" bed in a very thin state, being just about two feet ten inches. The haulage is by mule power. The ventilation is by furnace. There are two distinct currents of air, and the condition was much better at the close of the year than it was some months previously. The difficulty with this mine, as well as many others, is that the power producing the ventilation is inadequate. It was found usually in fair condition. M. H. Blyth, mine foreman.

Eureka 13.—This mine is adjoining No. 12 and the condition in regard to the coal is about the same. Haulage is by mule power, and the ventilation is by furnace, which, for circulating a good current through the small airways here, is not half powerful enough. During cold weather we caught about 16,000 cubic feet, but in summer it would be hard to secure enough air for the number of men at work. This mine has been much improved, however, in the last three months. There are now two intakes, thus making two currents. George Maxwell, mine foreman.

Eureka 14.—Drift mine working the "D" bed, which varies in thickness from three and a half to five feet. Haulage is by mule power. The ventilation is by furnace. Considerable money has been spent this year on improvements, particularly in the direction of cheapening haulage. The sanitary condition also received some attention. There are two distinct currents of air about equally divided, the total volume being about 16,000 cubic feet. Cornelius Maher, mine foreman.

Eureka 15.—A drift mine working the "D" bed, about four and a half feet thick. The haulage is by mule power and is very difficult, for the reason that all the coal is brought from the dip. The ventilation is by furnace, and while it has not been found usually in a very good condition, the last visit found a nice current passing all the workmen, the volume at the face being about 7,000 cubic feet. Robert Whitehead, mine foreman.

Eureka 16.—Drift mine working small coal bed "D," two feet eight inches. It is quite extensive for such a small vein. The haulage is by mule power. The ventilation is by furnace, which, during cold weather, creates a good current; but warm weather is a detriment to the mine. The current has been continuous until lately; now there are two divisions, which will be a great benefit. Considering the conditions, this mine is well kept up. John G. Robinson, mine foreman.

Eureka 18.—This is a new mine, but has been developed very rapidly on account of being double shifted. The coal is bed "D," about four and a half feet. Haulage is by mules. Ventilation is by furnace. Considerable work had been done here before the furnace was put in, and the condition was bad. However, since everything has been

completed, a good sanitary condition prevails. There is but one current, but arrangements are being made for a division of the same. James Blades, mine foreman.

Eureka 17-19.—Here we have two drifts, now connected inside, but the coal is dumped at two points. The coal is very low, about two and a half feet thick. The haulage is by mule power. The ventilation is produced by a ten-foot Brazil fan, acting as a blower. This mine is found always in a good sanitary condition. Roads are dry, and the current sufficiently brisk to make it pleasant; from 25,000 to 30,000 cubic feet are circulated. From some cause or other, the dry rot is very prevalent in this mine. On this account the brattice and doors have to be renewed occasionally. James Gatehouse, mine foreman.

Eureka 20.—A new mine, presumably on the "D" bed, about four and a half feet, including the bone on top. Mule haulage; furnace ventilation, with two distinct currents. When last visited, after the furnace had been completed and an overcast put in, I found the mine in good condition. Hugh C. Dick, mine foreman.

Excelsior 4.—The workings of this mine have passed through many troubles, faults, rolls, and clay veins, finding occasionally good pieces of coal. It is now, however, on its last legs. The haulage is by mule power. The ventilation by furnace, which has not always been up to the standard on account of the difficulty arising from the aforesaid troubles. At last visit, however, I found it in fair condition. John Williams, mine foreman.

Fairmount.—This mine is working the "E" bed, having quite an inclined plane to convey the coal to the shutes. On this plane the Hartman "Barney" is being used, with satisfaction. The coal here is about three and a half feet thick. Mule haulage; furnace ventilation, with two distinct currents of air; about 7,000 cubic feet to each. This mine is well cared for. Thomas J. Lowther, mine foreman.

Gearhart.—Drift mine working "E," three and a half to four feet in thickness. Mule haulage; furnace ventilation. There are two distinct currents. A new furnace was put in during the year, which improved the condition very much. The mine is now in a good sanitary condition. Richard Lobb, mine foreman.

Glenwood 1-2.—No. 1 is working the "D" coal, ranging from three to five feet in thickness, with mule haulage; furnace ventilation, having but one current of air; but, nevertheless, I have found it always in a good condition; the number of men at work about 40. The furnaces produces about 18,000 to 20,000 cubic feet. No. 2 is under the same management. It is working the "E" bed, however, about four feet in thickness. The haulage here is also by mule power. The coal is delivered to the same dump as No. 1 by a plane. The ventilation is by furnaces, and though there is but one current, it is so ar-

ranged that a portion of it is allowed to pass into each heading as it passes along. The headings, six in number, are all on the same (the left) side. The furnace, too, is on that side, so that the whole current travels in a body just the length of one heading on its return. This mine is particularly well looked after. C. J. Paul, mine foreman.

Grampian 1.—This mine works on the "E" bed, about three feet thick, and is not extensive, the main heading having been driven through the hill. The intake is, therefore, dependent on the direction of the wind. Furnace ventilation, with two currents of air, and the mine is well ventilated. Haulage by mules. David Green, mine foreman.

Grampian 2.—This mine was not visited during the year on account of irregular operation. It works the "D" bed, about four feet thick, with a very troublesome top, there being a bone and considerable fire-clay. Mule haulage; furnace ventilation. Richard Moran, mine foreman.

Guion.—Working the "C" bed, three to four feet thick. On account of irregular workings, I visited it but once, and that time found the mine in bad shape. I ordered some improvements to be made, but shortly after my visit the mine closed down for want of trade. James R. Sommerville was at that time mine foreman.

Highland.—This is a small concern, working the "E" bed. On two occasions I sent the men who were at work here out for want of ventilation. A little shaft was finally put down, and a still smaller furnace put at the foot of it—a two by three fireplace. The owner claimed that it did not pay to spend any more money on it. After complaint had been made that the fire arrangement was too small, the mine was closed, and is at present working with fewer than ten persons. James Jinnick, mine foreman.

Henderson.—This is a small operation, having two drifts through which coal is brought out. In one of these the coal is much troubled by rolls in the top. The coal is "D" bed, varying from two and a half to five feet. Mule haulage. Natural ventilation; there is a furnace also; but on account of the workings being loose into extensive old workings giving off large volumes of black damp, it is not possible to work when the wind is from the direction of the old workings. There is a probability of a force fan being put in so as to enable the mine to run regular. Edward Lloyd, mine foreman.

Homestead.—A small operation working bed "C" in two members, yielding good coal. The mine is hardly up to the standard required by law. When it was opened up it was not the intention to work it extensively enough to come under the law. The result is that considerable work is yet necessary to bring the mine to the legal requirement. D. H. Campbell, mine foreman.

Hughes.—This operation consists of three small drifts, bringing

their product to the same dump. No certificated foreman was engaged here until late in the year. Just one visit was made, and it was for the purpose of requiring the service of a certified man. Frank O'Rourke, mine foreman.

Jefferson.—This mine is working the "E" bed, about four feet thick. The haulage is by mules. A plane is used to deliver the coal to the tippie. The ventilation is by furnace. There are three currents of air, but neither of them is large enough in volume. Everything has been done on too small a scale. The furnace is not large enough. The shaft is too small and shallow. The overcasts and air-courses are much too small, the whole resulting in a very unsatisfactory condition to all parties concerned, particularly to the miner. John C. Johnson, mine foreman.

Kentuck.—This mine worked very little during the year; for this reason it was not visited.

Lancashire 1.—This mine is working the "D" bed, ranging from three to five and a half feet. Haulage is by mules. Ventilation by furnace. There are two currents of air, and during this year the condition has been comfortable as regards ventilation. Not so, however, in regard to drainage. The traveling is bad here, owing to the roads having been made without any provision for ditches to carry off the water, a very important matter, particularly where bottom is taken up to make height for road. Richard Ashcroft, mine foreman.

Lancashire 2.—Working the same territory as No. 1, and under the same management. A portion of the coal is brought out through No. 1. The balance is taken out in another direction. Haulage is by mules. Ventilation by furnace, and is generally fair. The complaint made at my last visit was that the rooms did not receive enough attention as regards ventilation.

Leland.—This mine is working the "D" coal where it is thin—about two feet eight inches. The haulage is by mules. The ventilation is by furnace, there being but one current. It, however, has been sufficient for the number of men engaged. During the year a few places were found in advance of the current, but now that has been overcome, and the mine, as regards ventilation, is in good condition. John Carlin, mine foreman.

Logan.—A small mine working bed "E," about three to four feet thick. Furnace ventilation, in one current, and that not large enough in volume. On account of dullness of trade, it, like many other mines, worked very irregularly during the year. Mule haulage, with a long tram-road on the outside. William Fitzgerald, mine foreman.

Lorraine.—There are two drifts here, one on the "D" bed, where the coal was in excellent condition, varying from four to seven feet in thickness. The duration of this mine depends on whether or not the operators can secure a piece of coal adjoining, which belongs to an-

other company, but is located awkwardly for them to work. This mine has been in bad condition as to ventilation on account of the uncertainty. The other drift is on the "E" bed, and was in very bad condition at the beginning of the year. A second opening and a furnace and shaft were put in, however, which brought it within the requirement. With a little attention now, it can be kept in good condition. George Gould, mine foreman.

Lane.—This is a new mine. Has only been in operation three months of the year. It is opened on the "D" bed, which is from five to six feet in thickness. Ventilation is by furnace, and two currents can easily be obtained. The mine is well opened, and in a good piece of coal, so that a good condition may be expected. James R. Somerville, mine foreman.

Mabel.—This mine was abandoned early in the year, and has not been worked any since, though it has changed owners.

Mapleton.—This is a very old mine and was thought to have been exhausted years ago, but there is considerable coal still mined here. The coal bed is "D," about three and a half to four feet thick. The haulage is by mules. The ventilation is by furnace. One current only of air, and the mine is not as well ventilated as could be desired. William Fitzgerald, mine foreman.

Montana.—A mine consisting of two drifts, working bed "E," about four feet thick. On one visit paid the mine in the spring it was very badly ventilated. I ordered some changes in the method of conducting the current that improved the condition greatly. Haulage is by mules. Ventilation is by furnace. One current of air. Henry Byrom, mine foreman.

Morrisdale Shaft.—This is a new shaft mine, 130 feet deep into the "B" bed, in very good shape, ranging from four to five and a half feet. There is, however, a very bad condition here in the formation; that is, there is a fire clay ranging from one to six feet in thickness overlying the coal, and much trouble and danger arises from it. So dangerous, indeed, is it, particularly in narrow places, that I felt obliged to require that it be taken down as the headings were driven along, for in a few days after this roof is exposed to the air, it falls in great pieces without the slightest warning. The ventilation has been produced by the heat and exhaust steam from the pumps, but now a 12-foot fan is being put in. This promises to be an extensive mine, and every effort will be made by the management to keep it up to a high standard. The coal is hoisted in an automatic dumping cage.

John McGonigal has been in charge since the sinking commenced, but is now succeeded by James Starford.

Mt. Vernon 4.—This is a new slope mine sunk to bed "B," having about two feet of coal in the upper member of the bed, then eight inches of stone, and the lower coal member is about twenty inches.

Very little work was done here. There has not been a second opening put down yet. The mine is idle awaiting the completion of the Altoona and Philipsburg Connecting Line.

Mt. Vernon 5.—This is a drift mine working the "D" bed, ranging in thickness from three to seven feet. The haulage here is by main and tail rope. The ventilation is by furnace, which circulates from 20,000 to 40,000 cubic feet, according to the temperature outside. I have found this mine generally in good condition for ventilation; during the last summer, however, one side was found poorly ventilated. To overcome this, a furnace was ordered kept going for that side. The drainage is bad along the roads, too much dirt being allowed to accumulate along the sides. John May, mine foreman.

Mt. Vernon 8.—This is a shaft mine, 165 feet deep. No second opening made yet. The same remarks apply to it as to Mt. Vernon 4, except that more work has been done here. John Maurice mine foreman.

Mt. Vernon 6.—This is a shaft mine, about 160 feet deep, into the "D" bed. The usual thickness of the coal here is two feet ten inches, with sometimes top coal to take down where the parting slate is not too thick. The haulage to foot of shaft is by mule power. The ventilation is by fan, and with one exception it has been found in good condition. The drainage, however, has not received the attention it requires. The mine is also stopped, awaiting the completion of the Altoona and Philipsburg Connecting Line. James S. Campbell, mine foreman.

Mt. Vernon 7.—A drift mine working the "D" bed, about two and a half feet thick. Mule haulage. Furnace ventilation. I have found this mine generally in a comfortable condition for the few men who are employed. James McAlarney, mine foreman.

Ocean 2.—This is a shaft mine, about 90 feet deep, working the "D" bed, varying in thickness from two feet ten inches to five feet. On two visits to this mine, I found a very bad condition in regard to ventilation. Efforts, however, have been made and are now being made, to better it. First, the intake was made larger in order to accommodate the current, but this did not better things much, for the reason that the furnace, which produced the ventilation, was drawing from the old workings more than from the new intake. At the present writing a sixteen-foot fan is being put in. Drainage is generally poor on the roads here. Thomas Marshal, mine foreman.

Pardee 1 and 2.—These mines are a slope and drift, respectively, and are opened into the same tract of coal, one opening on each side of the hill. The haulage in both is by main and tail rope. No. 1 is rapidly working out, its capacity being about 300 tons daily, while that of No. 2 is 1,200 tons. Both mines are ventilated by the same furnace, which passes about 60,000 cubic feet of air per minute. There

are three distinct currents of air, and these mines are always found in good condition, both as regards ventilation and drainage. These mines are working the "D" bed. D. R. Philips has been foreman here until lately, when George Snedden took charge.

Queen No. 1.—This mine works the "D" bed, three feet in thickness. It is a small operation, and has worked very irregularly during the year. It is a drift, with a short plane to deliver the coal to the dump. Mule haulage. Furnace ventilation. Each time visited it was found in a good sanitary condition. James L. Nicholson, mine foreman.

Reading.—A drift mine, working "D" bed, varying from two to four feet in thickness on account of rolls. The ventilation is by furnace, and during the year the mine has been much improved; so much so indeed, that I was pleased to report it in good condition in my last visit. The haulage is by mule power. Charlton Dixon, mine foreman.

Shoff.—Drift mine, working "D" bed, about four feet thick, with sand rock roof, much broken by clay slips, therefore very dangerous. Haulage by mules. Ventilation by furnace, and generally in good condition. It is so nearly exhausted that it is now being run by fewer than ten persons. Thomas Young, foreman.

Staffordshire.—This is a drift mine working "C" or "B" bed, about three and a half feet, including bone. Haulage by mules. Ventilation by furnace. Good, fresh air has been a scarce commodity in this mine during the year. The drift is new, and there was too much hurry for coal when it was opened, so that the proper arrangements for securing the current were neglected. I had to stop a portion of the mine once, for insufficient air and also for want of an escapeway. Thomas W. Jones, mine foreman.

Sterling No. 2.—A drift mine, working a few men on bed "D," which is from five to six feet thick. Haulage by mules. Ventilation by furnace. It is found generally in good condition. The outside improvements were burned lately, but are now built on a less extensive but in a more substantial manner. Michael Craig, foreman.

Troy.—A drift mine, with two openings for haulage, which is by main and tail rope. Until lately this was an extensive mine. It is now likely to be exhausted within eight months. Ventilation was by fan, but is now by furnace, the fan having been taken to another mine. Coal is bed "D," very uniform, about four and a half feet. Condition generally good. John C. McDermott, foreman.

Victor 1.—A drift mine, working "D" bed, about five feet thick. There is no advance work here now, all is being drawn. Haulage is by mules to drift mouth, then by locomotive to dump. Ventilation is by furnace, and has not been found during the year in good condition. Drainage has always been bad in this mine. As it will soon be exhausted it would hardly be proper to exact costly improvements. William Dunsmore, foreman.

Webster No. 4.—A drift mine working "D" bed, ranging from two and a half to five feet in thickness. The highest coal is found in the present new workings. The haulage is by mule power, with a gradual grade in favor of the loads, while on the outside, the coal is drawn up an inclined plane to dump. The ventilation has never been good in this mine until this year, when a shaft over 100 feet deep was sunk and a furnace put at the foot of it, a pleasing contrast to former contrivances for producing ventilation. Drainage, on the roads has also been much improved during the year. John Stoker, foreman.

Centre County Mines.

Black Diamond.—A drift mine working the "B" bed, about three and a half feet under the bone. Haulage is by mules. Drainage on roads poor, owing to the water from old workings, having frequent crossings to hunt the ditch on the lower side of the heading. Ventilation is by furnace, and has not been up to the required standard, but is expected to be in better condition in the future, as there is a furnace on the highest elevation for winter use, and one at the lowest point for warm weather. John O'Neil, foreman.

Central.—A drift mine on the "D" bed, about five feet thick on an average. This is a small operation, and the ventilation is generally by natural means, and is sufficient for the few men at work. The coal here lies very irregularly as to level, and in consequence it has been a very difficult mine to drain. I have found it, however, generally in good condition. W. S. Edwards, foreman.

Electric.—This mine is working "B," bed about three and a half feet exclusive of bone. It has worked scarcely any during the year. Has always been found in good condition when running. W. S. Edwards was foreman.

Ghem.—A drift mine working "B" bed, three and a half feet, exclusive of bone. Furnace ventilation, with three currents of air, rather feeble, however, on account of the furnace being too small for split currents. Haulage by mule power. The mine is generally well looked after. Samuel Pfouts, foreman.

Phoenix.—A small operation by drift on the "B" bed, now about four feet thick. Though there are only a few men at work here, I have failed to find a good condition as to ventilation. The mine has been badly broken up under former managements, so that it is difficult to keep it up to the required standard now. David G. Lowther, foreman.

Pioneer.—Also a small operation, working on bed "A," about four to five feet thick. It has worked quite irregularly, with rather frequent changes in management, which is always detrimental to the mine. The ventilation is by furnace; but it is little more than a name, for there is no shaft, only a banked up concern at the mouth of an old

drift. Much on this account I have failed to find a desirable condition. Charles Rodden, foreman.

Ophir.—A drift mine, opened on bed "B," about three and a half feet exclusive of the bone. This mine is well opened, is provided for three splits of air at present, which are produced by a furnace, and it is generally found in good condition. The haulage is by mule power. Eli Townsend, foreman.

Orient.—A drift mine, working on bed "A," which is about four and a half feet thick. It is of small capacity, having mule power at present; but as the coal has to be brought from the dip, some mechanical haulage is intended in the near future. Ventilation is by furnace, and has generally been in good condition. Samuel Twiggs, foreman.

Jefferson County Mines.

West Eureka No. 1.—This is a drift mine working, presumably on the "D" bed, which varies in thickness from three and a half to seven feet. The undulations of the bed are marked in all the mines of this region. This has been a very extensive mine, but is now almost entirely working on pillars. The ventilation is produced by a 20-foot fan, and is ample. I found this mine in good condition. The haulage is by mules. H. W. Moore, foreman.

West Eureka No. 2.—This has been an extensive mine, but is now fast being worked out. It is a slope mine, pitching twelve degrees for five hundred feet. Haulage to foot of slope by mule power. It is working the "D" bed, which varies from three feet on the hill tops, to six feet in the swamps. Great volumes of water are being constantly pumped out of this mine at many times the cost of raising the coal. The ventilation is by fan, and has been found plentiful. Joseph Williams, foreman.

West Eureka No. 4.—This is a slope mine, neither steep nor long. Immediately at the foot of the slope the coal commences to rise, so that there is a grade in favor of loads to the foot of slope from every part of the mine. The coal is bed "D," about four feet thick. The haulage is by mule to foot of slope. The ventilation is by fan 20 feet in diameter, passing easily 40,000 to 50,000 cubic feet per minute. The mine is well ventilated by having several splits of air, and is otherwise well kept. James Harvey, foreman.

West Eureka No. 5.—This mine borders on No. 1, into which it has worked loose along the line. The current from No. 1 fan is thrown into the adjoining portion of No. 5; but while No. 1 is well ventilated, it is not so with this portion of No. 5, owing, probably, to leakages all along this border line. The other part of this mine is well ventilated. There is a small fan at the mine. A large quantity of water is being pumped out of the mine by means of bore holes from the surface. This is a slope mine of considerable length. James Woods, foreman.

West Eureka No. 6.—This is also a slope mine. A further description of it will be found in the former part of this report, in relation to the mine fire which occurred here. The coal is bed "D," from five to eight feet thick. It is ventilated by a 25-foot fan, and the ventilation is ample. During one of my visits I found a portion of it rather uncomfortable to work in, by reason of the steam and heat from several pumps working therein; otherwise I found it in good condition. Thomas Morgan, foreman.

West Eureka No. 10.—A drift mine working the "D" bed, which is about four and a half feet thick. The haulage is by mule power. The drainage is good. Ventilation is produced by a furnace. The shaft is too shallow, however, to give power enough for ventilating so extensive a mine. On the first visit which I paid here, the lack of power was evident. A boiler for pumping purposes having been placed in the return airway was another impediment to the ventilation. Now, however, two overcasts have been put in and another intake put in, the combined effects resulting in a much better condition. Thomas Booth, foreman.

West Eureka No. 11.—This is a new mine, working on bed "D," which is from four to five and a half feet thick. This mine is well opened, having double track intake, separating after being driven in some distance, so that the return airway is located in the middle. The furnace is ten feet wide, elliptical in shape, and the shaft is over 100 feet deep and twelve feet square, thus assuring an immense power for ventilation. The drainage of the mine has also had attention paid to it. As a result of such care and forethought in opening, one could not find other than a good condition of things. Dan. A. Thomas, foreman.

West Eureka No. 12.—A drift mine also, and in every respect similar to No. 11, except that the opening here is by two drifts about 80 feet apart, with the return in the centre. To Mr. Thomas Richards, general mine foreman, is due the credit for the manner in which all this work has been done. Ellsworth Ruppert, foreman.

Summit.—A small drift operation. The output is used to coal the engines on the P. & N. W. R. R. The ventilation is by furnace. The mine was found in good condition. Isaac Smith, foreman.

TABLE No. 1—Showing location, &c., of collieries in the Eighth Bituminous Mine District.

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Postoffice Address.
Acme.	O. P. Jones.	Clearfield.	Jas. R. Fleming.	Philipsburg, Pa.
Alexander.	Thos. Blyth & Co.,	do.	Thos. Blyth.	Madera, Pa.
Atlantic No. 1.	Berwind-White Coal Mining Company,	do.	A. S. R. Richards.	Osceola Mills, Pa.
Atlantic No. 2.	do.	do.	do.	do.
Baltic Nos. 1, 2 and 3.	Baltic Coal Company.	do.	Jos. H. Riley.	Philipsburg, Pa.
Bessmer.	Henry Liveright.	do.	Henry Liveright.	Osceola Mills, Pa.
Champion.	The United Collieries Company.	do.	Geo. H. Good.	do.
Coaldate No. 3.	O. Perry Jones.	do.	Jas. R. Fleming.	Philipsburg, Pa.
Coaldate No. 5.	do.	do.	do.	do.
Colorado Nos. 1 and 2.	Jackman & Ellsworth.	do.	Jackman & Ellsworth.	do.
Colorado No. 3.	do.	do.	do.	do.
Columbia No. 5.	J. L. Mitchell.	do.	B. E. Smith.	Osceola Mills, Pa.
Cooke.	J. W. Cooke.	do.	H. T. Cooke.	Worland, Pa.
Decatur No. 1.	John Nuttal & Co.,	do.	John Nuttal.	Philipsburg, Pa.
Derby No. 2.	do.	do.	do.	do.
Eureka No. 1.	Thos. Barnes & Bro.	do.	Thos. Barnes.	do.
Eureka No. 2.	B. W. Coal Mining Company.	do.	A. S. R. Richards.	Osceola Mills, Pa.
Eureka No. 3.	do.	do.	do.	do.
Eureka No. 5.	do.	do.	do.	do.
Eureka No. 7.	do.	do.	do.	do.
Eureka No. 8.	do.	do.	do.	do.
Eureka No. 9.	do.	do.	do.	do.
Eureka No. 10.	do.	do.	do.	do.
Eureka No. 11.	do.	do.	do.	do.
Eureka No. 12.	Thos. Blyth.	do.	do.	do.
Eureka No. 13.	B. W. Coal Mining Company.	do.	do.	do.
Eureka No. 14.	Henry Liveright.	do.	Henry Liveright.	do.
Eureka No. 15.	B. W. Coal Mining Company.	do.	A. S. R. Richards.	do.
Eureka No. 16.	do.	do.	do.	do.
Eureka No. 17.	do.	do.	do.	do.
Eureka No. 18.	do.	do.	do.	do.
Eureka No. 19.	do.	do.	do.	do.
Eureka No. 20.	do.	do.	do.	do.
Excelsior No. 4.	do.	do.	do.	do.
Fairmount.	Henry Liveright.	do.	Henry Liveright.	do.
Fennell.	Reed & Gould.	do.	Reed & Gould.	Brishin, Pa.
Glenfield.	Thos. J. Lee & Co., Limited.	do.	Thos. J. Lee.	Philipsburg, Pa.
Glenwood Nos. 1 and 2.	Williams, Morris & Co.,	do.	Jno. M. Campbell.	do.
Grampian No. 1.	R. C. Fishburn & Co.,	do.	R. C. Fishburn.	Munson's, Pa.
Grampian No. 2.	do.	do.	do.	do.
Gulon.	Sanford & Duncan.	do.	J. N. Nicholson.	Philipsburg, Pa.
Henderson.	DeLong & Gould.	do.	Joel DeLong.	Brishin, Pa.
Hickland.	Jones & Walton.	do.	John Walton.	Philipsburg, Pa.
Homestead.	Reece Bros.,	do.	Silas Reece.	do.
Hughes.	Richard Hughes.	do.	H. M. Hughes.	do.
Jefferson.	Adams & Co.,	do.	Geo. B. Friday.	do.
Lancashire No. 1.	Lancashire & Co.,	do.	Thos. Barnes.	do.
Lancashire No. 2.	do.	do.	do.	do.
Lane.	Fred C. Todd & Co.,	do.	Fred C. Todd.	do.
Leland.	Cambria Coal Mining Company.	do.	D. D. Lewis.	Snoke Run, Pa.
Logan.	H. Liveright & Co.,	do.	Henry Liveright.	Osceola Mills, Pa.

TABLE NO. 1—Continued.

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Postoffice Address.
Loraine, ...	Reakirt Bro. & Co., ...	Clearfield, ...	George Gould, ...	Brislin, Pa.
Maple, ...	Thos. Blyth, ...	do, ...	Thos. Blyth, ...	Madera, Pa.
Mapleton, ...	Henry Liveright, ...	do, ...	Henry Liveright, ...	Osceola Mills, Pa.
Montana, ...	J. Swires & Co., ...	do, ...	Jacob Swires, ...	Phillipsburg, Pa.
Morrisdale No. 1, ...	R. B. Wigton & Sons, ...	do, ...	Chas. E. Sharpless, ...	do, ...
Morrisdale shaft, ...	do, ...	do, ...	do, ...	do, ...
Mount Vernon No. 4, ...	The United Collieries Company, ...	do, ...	James Dent/born, ...	Huntingdon, Pa.
Mount Vernon No. 5, ...	do, ...	do, ...	do, ...	do, ...
Mount Vernon No. 6, ...	do, ...	do, ...	do, ...	do, ...
Mount Vernon No. 7, ...	do, ...	do, ...	do, ...	do, ...
Mount Vernon No. 8, ...	do, ...	do, ...	do, ...	do, ...
Ocean No. 3, ...	B. W. Coal Mining Company, ...	do, ...	do, ...	do, ...
Pacific No. 1, ...	do, ...	do, ...	A. S. R. Richards, ...	Osceola Mills, Pa.
Pardee No. 1, ...	do, ...	do, ...	do, ...	do, ...
Pardee No. 2, ...	Magee & Lingle, ...	do, ...	do, ...	do, ...
Queen No. 1, ...	do, ...	do, ...	W. C. Lingle, ...	Phillipsburg, Pa.
Queen No. 2, ...	Queen Coal Company, ...	do, ...	do, ...	do, ...
Reading, ...	Pennsylvania Iron Company, ...	do, ...	I. L. Nicholson, ...	do, ...
Rothrock, ...	do, ...	do, ...	Thos. P. Hale, ...	do, ...
Shoff, ...	R. B. Wigton & Sons, ...	do, ...	Chas. E. Sharpless, ...	do, ...
Staffordshire, ...	do, ...	do, ...	do, ...	do, ...
Sterling No. 1, ...	Thos. Barnes & Co., ...	do, ...	J. T. Slinger, ...	do, ...
Sterling No. 2, ...	Sterling Coal Company, ...	do, ...	Thos. E. McHugh, ...	Houtzdale, Pa.
Sterling No. 3, ...	M. & F. Craig, ...	do, ...	Michael Craig, ...	Brislin, Pa.
Sterling No. 4, ...	Sterling Coal Company, ...	do, ...	Thos. E. McHugh, ...	Houtzdale, Pa.
Troy, ...	R. B. Wigton & Co., ...	do, ...	Chas. E. Sharpless, ...	Phillipsburg, Pa.
Victor Nos. 1 and 3, ...	Bloomington Mining Company, ...	do, ...	Alex. Dunsmore, ...	do, ...
Victor No. 2, ...	Thos. Barnes, ...	do, ...	Thos. Barnes, ...	do, ...
Washington, ...	Thomas & Co., ...	do, ...	Geo. B. Friday, ...	do, ...
Webster No. 4, ...	Bulah Coal Company, ...	do, ...	Thos. H. Minds, ...	do, ...
Black Diamond, ...	R. A. Jackson, ...	Centre, ...	A. C. Jackson, ...	Ramey, Pa.
Chen, ...	Ghem Coal Company, ...	do, ...	Geo. H. Good, ...	Osceola Mills, Pa.
Central, ...	T. C. Helmes & Co., ...	do, ...	W. S. Edwards, ...	do, ...
Electric, ...	do, ...	do, ...	do, ...	do, ...
Flange, ...	Henry Liveright, ...	do, ...	do, ...	do, ...
Plunge, ...	do, ...	do, ...	Henry Liveright, ...	do, ...
Ophir, ...	Hoyle & Schman, ...	do, ...	do, ...	do, ...
Orient, ...	Blair Bros., ...	do, ...	A. V. Byrt, ...	Phillipsburg, Pa.
West Eureka No. 1, ...	Berwind-White Coal Mining Company, ...	Jefferson, ...	J. B. Blair, ...	Tyrone, Pa.
West Eureka No. 2, ...	do, ...	do, ...	Thos. Fisher, ...	Horatio, Pa.
West Eureka No. 3, ...	do, ...	do, ...	do, ...	do, ...
West Eureka No. 4, ...	do, ...	do, ...	do, ...	do, ...
West Eureka No. 5, ...	do, ...	do, ...	do, ...	do, ...
West Eureka No. 6, ...	do, ...	do, ...	do, ...	do, ...
West Eureka No. 7, ...	do, ...	do, ...	do, ...	do, ...
West Eureka No. 8, ...	do, ...	do, ...	do, ...	do, ...
West Eureka No. 9, ...	do, ...	do, ...	do, ...	do, ...
West Eureka No. 10, ...	do, ...	do, ...	do, ...	do, ...
West Eureka No. 11, ...	do, ...	do, ...	do, ...	do, ...
West Eureka No. 12, ...	do, ...	do, ...	do, ...	do, ...
Kentuck, ...	C. A. Faulkner & Co., ...	Clearfield, ...	C. A. Faulkner, ...	Phillipsburg, Pa.
Summit, ...	Summit Coal Company, ...	Jefferson, ...	C. F. Fraser, ...	Hastings, Pa.

TABLE NO. 2.—Gives the total number of tons of coal mined and tons of coke produced in each colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, &c., in the Eighth Bituminous Mining District for the year ending December 31, 1893.

Names and Location of Collieries.	Total production in tons of coal.	Total production in tons of coke.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.	Stationary engines and number mine locomotives.	Number coke ovens.
Aene, Clearfield county, ...	51,240	..	50,570	250	84	1	..	450	3	6	2	..
Altoona, Clearfield county, ...	24,451	..	24,351	270	35	..	..	115	..	2	..	..
Atlantic No. 1, Clearfield county, ...	179,493	..	175,302	214	191	2	..	259	7	27	4	..
Atlantic No. 2, Clearfield county, ...	159,191	..	156,975	217	173	..	..	112	5	17	5	..
Baltic No. 1, 2 and 3, Clearfield county, ...	69,381	..	69,381	177	123	..	..	123	..	20	..	..
Bessemer, Clearfield county, ...	5,430	..	5,430	63	35	..	..	16	..	..	..	..
Champion, Clearfield county, ...	16,464	..	16,464	130	54	..	..	125	..	5	..	..
Coaldale No. 3, Clearfield county, ...	102,872	..	102,200	145	221	1	..	500	5	20	2	..
Coaldale No. 5, Clearfield county, ...	102,760	..	102,000	152	179	..	..	400	3	15	2	..
Colorado No. 1 and 2, Clearfield county, ...	65,553	..	65,553	188	100	..	..	..	..	17	..	..
Colorado No. 3, Clearfield county, ...	40,987	..	40,987	137	103	..	..	..	1	6	1	..
Columbia No. 5, Clearfield county, ...	23,233	..	23,233	92	77	..	..	150	..	7	..	..
Cookes, Clearfield county, ...	25,000	..	25,000	243	41	..	..	2	..	6	1	..
Decatur No. 1, Clearfield county, ...	42,621	..	42,621	87	117	..	..	150	..	16	..	..
Decatur No. 2, Clearfield county, ...	17,249	..	17,249	74	49	..	..	75	..	3	..	..
Derby, Clearfield county, ...	23,551	..	23,551	133	36	..	..	275	..	5	..	..
Eureka No. 2, Clearfield county, ...	23,843	..	23,843	130	40	..	..	..	..	6	..	..
Eureka No. 3, Clearfield county, ...	118,208	..	118,208	200	86	..	..	315	7	37	4	..
Eureka No. 4, Clearfield county, ...	146,668	..	146,240	224	159	1	..	549	4	28	4	..
Eureka No. 5, Clearfield county, ...	53,218	..	53,218	157	11	..	..	543	..	14	..	..
Eureka No. 6, Clearfield county, ...	43,448	..	43,448	187	15	..	..	223	5	14	2	..
Eureka No. 7, Clearfield county, ...	90,296	..	90,296	179	124	..	..	341	..	12	..	..
Eureka No. 8, Clearfield county, ...	72,983	..	72,983	300	182	2	..	300	..	4	..	..
Eureka No. 9, Clearfield county, ...	52,140	..	52,180	165	165	..	..	307	..	13	..	..
Eureka No. 10, Clearfield county, ...	83,672	..	83,672	207	114	3	..	480	1	19	..	..
Eureka No. 11, Clearfield county, ...	23,161	..	23,161	153	49	..	..	122	2	11	2	..
Eureka No. 12, Clearfield county, ...	92,248	..	92,247	250	168	..	..	448	..	16	..	..
Eureka No. 13, Clearfield county, ...	70,789	..	70,789	236	132	2	..	480	1	6	1	..
Eureka No. 14, Clearfield county, ...	84,457	..	80,693	186	174	1	..	240	..	15	..	..

Names and Location of Collieries.

TABLE NO. 2—Continued.

Names and Location of Collieries.	Total production in tons of coal.	Total production in tons of coke.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.	Stationary engines and number mine locomotives.	Number coke ovens.
Eureka No. 19, Clearfield county.	18,723	..	12,923	135	44	..	..	30	1	3	1	..
Eureka No. 20, Clearfield county.	23,553	..	23,273	182	77	1	2	153	..	8	..	..
Excelsior No. 4, Clearfield county.	46,643	..	46,643	220	67	..	..	152	..	15	..	..
Fairmount, Clearfield county.	20,646	..	20,626	222	45	1	..	173	..	..	..	..
Ferndale, Clearfield county.	9,542	..	9,542	196	17	..	..	20	..	4	..	..
Gearhart, Clearfield county.	65,869	..	65,816	175	127	..	..	..	..	2	..	..
Glenwood, No. 1 and 2, Clearfield county.	67,707	..	67,707	216	90	..	..	148	..	2	..	..
Gramplan No. 1, Clearfield county.	18,404	..	18,404	183	68	1	..	147	..	2	..	..
Gramplan No. 2, Clearfield county.	15,847	..	15,847	130	57	..	..	147	..	2	..	..
Gulton, Clearfield county.	6,224	..	6,224	50	35	..	..	40	..	1	..	..
Henderson, Clearfield county.	12,052	..	12,052	198	23	..	..	48	..	4	..	..
Highland, Clearfield county.	16,612	..	16,612	146	33	..	..	50	..	1	..	..
Honestead, Clearfield county.	8,400	..	8,400	240	20	..	..	125	..	3	..	..
Hughes, Clearfield county.	15,000	..	15,000	275	22	..	..	173	..	3	..	..
Jefferson, Clearfield county.	32,718	..	32,650	269	51	..	..	950	..	21	..	..
Lancashire No. 1, Clearfield county.	101,156	..	101,156	185	151	1	1	420	..	10	..	..
Lancashire No. 2, Clearfield county.	42,621	..	42,621	173	75	..	..	353	..	3	..	..
Lane, Clearfield county.	12,711	..	12,711	50	59	..	..	180	..	3	..	..
Leland, Clearfield county.	30,000	..	30,000	220	69	..	..	160	..	9	..	..
Logan, Clearfield county.	29,354	..	29,354	218	47	..	..	35	..	2	..	..
Madison, Clearfield county.	26,422	..	26,422	216	38	..	..	120	..	12	..	..
Mapleton, Clearfield county.	30,332	..	30,332	200	36	..	..	325	..	6	..	..
Mapleton, Clearfield county.	4,520	..	4,520	150	69	..	..	395	..	12	..	..
Montana, Clearfield county.	60,373	14,654	31,092	212	104	1	1	200	5	3	1	106
Morrisdale No. 1, Clearfield county.	37,051	..	37,051	89	125	..	..	..	..	6	..	..
Morrisdale shaft, Clearfield county.	2,568	..	2,568	35	29	..	..	..	..	19	..	..
Mt. Vernon No. 4, Clearfield county.	58,458	..	58,458	143	147	..	..	..	..	10	..	..
Mt. Vernon No. 5, Clearfield county.	84,174	..	84,174	245	160	1	1	..	..	2	..	..
Mt. Vernon No. 6, Clearfield county.	17,023	..	17,023	225	46	..	..	200	..	3	..	..
Mt. Vernon No. 7, Clearfield county.	4,122	..	4,122	45	41	..	..	..	..	2	..	..
Mt. Vernon No. 8, Clearfield county.	15,115	..	15,115	77	40	..	..	..	..	5	..	..
Ocean No. 1, Clearfield county.	121,007	..	118,585	269	214	1	..	180	4	19	..	..

Pacific No. 1, Clearfield county.	29,273	133	47	1	6	1
Partee No. 1, Clearfield county.	48,284	133	72	300	6	2
Partee No. 2, Clearfield county.	195,439	133	277	642	22	1
Queen No. 1, Clearfield county.	21,396	110	57	1	5	2
Queen No. 2, Clearfield county.	23,087	192	52	130	3	6
Reagan, Clearfield county.	24,244	93	73	150	8	2
Stoff, Clearfield county.	31,259	120	37	1	42	6
Stoddardshire, Clearfield county.	40,075	216	61	450	5	5
Sterling No. 1, Clearfield county.	27,550	147	87	800	1	8
Sterling No. 2, Clearfield county.	16,269	158	21	72	2	1
Sterling No. 3, Clearfield county.	55,100	208	90	200	2	6
Sterling No. 4, Clearfield county.	246,889	196	403	852	1	13
Tracy, Clearfield county.	60,033	155	148	210	17	1
Victor Nos. 1 and 3, Clearfield county.	9,494	79	38	93	2	2
Victor No. 2, Clearfield county.	12,505	152	38	100	4	4
Washington, Clearfield county.	89,873	151	148	663	1	14
Webster No. 4, Clearfield county.	42,525	236	78	1	8	5
Black Diamond, Centre county.	40,008	185	72	260	5	7
Ghem, Centre county.	17,612	186	34	36	7	5
Central, Centre county.	9,328	39	39	21	5	4
Electric, Centre county.	24,002	329	30	90	1	1
Phoenix, Centre county.	18,882	215	34	185	5	5
Pioneer, Centre county.	36,926	163	81	300	1	9
Ophir, Centre county.	62,261	270	91	350	1	25
Orient, Centre county.	21,271	174	245	1	30	80
West Eureka No. 1, Centre county.	117,706	62,498	267	2	6	2
West Eureka No. 2, Centre county.	121,766	178	264	1	18	2
West Eureka No. 3, Centre county.	144,470	132	234	2	17	2
West Eureka No. 4, Centre county.	112,780	124	155	3	15	2
West Eureka No. 5, Centre county.	116,782	171	155	1	3	2
West Eureka No. 6, Centre county.	145,687	151	248	1	333	1
West Eureka No. 7, Centre county.	165,180	202	248	1	10	10
West Eureka No. 8, Centre county.	50,429	180	87	1	11	11
West Eureka No. 9, Centre county.	44,718	159	106	1	4	3
West Eureka No. 10, Centre county.	8,231	59	31	18	3	3
West Eureka No. 11, Centre county.	15,187	300	21	100	3	3
West Eureka No. 12, Centre county.	15,187	300	21	100	3	3
Summit, Jefferson county.	15,187	300	21	100	3	3
Total.	5,043,478	50,857	9,423	31	17,743	276
	4,920,932	16,518	9,423	20	104	67

Tot

TABLE No. 3—Showing the number of each class of employes at each colliery in the Eighth Bituminous Mine District during the year 1893.

Name and Location of Collieries.	Number of Persons Employed Inside.						Number of Persons Employed Outside.					Grand totals—Inside and outside	
	Inside foreman or mine boss.	Miners.	Miner boys.	All company men.	Drivers and runners.	Doorboys and helpers.	Total inside.	Blacksmiths and carpenters.	Engineers and firemen.	All company men.	Superintendents, bookkeepers and clerks.		Total outside.
Acme, Clearfield county.	1	55	13	3	3	2	76	2	1	4	1	8	84
Alexander, Clearfield county.	1	27	3	..	2	..	32	..	..	2	1	3	35
Atlantic No. 1, Clearfield county.	1	126	10	19	16	8	179	..	2	4	3	12	191
Atlantic No. 2, Clearfield county.	1	137	15	6	8	..	166	3	1	4	2	11	173
Baltic Nos. 1, 2 and 3, Clearfield county.	1	80	20	3	9	..	115	1	..	6	1	8	123
Bessemer, Clearfield county.	1	22	7	3	3	1	34	..	..	..	..	1	35
Champion, Clearfield county.	1	40	8	1	3	3	53	1	..	..	..	..	54
Coaldale No. 3, Clearfield county.	1	165	15	5	15	5	205	3	3	10	1	16	221
Coaldale No. 5, Clearfield county.	1	130	10	3	17	5	165	2	2	8	2	14	173
Colorado Nos. 1 and 2, Clearfield county.	1	70	12	2	7	4	95	1	..	4	..	5	100
Colorado No. 3, Clearfield county.	1	75	13	1	5	1	97	1	1	4	..	6	103
Columbia No. 3, Clearfield county.	1	64	3	3	1	4	74	1	..	5	1	3	77
Cooke's, Clearfield county.	1	30	12	..	2	..	34	1	..	4	2	7	47
Decatur No. 1, Clearfield county.	1	33	13	5	8	1	53	1	..	1	1	3	57
Decatur No. 2, Clearfield county.	1	30	9	1	3	..	46	1	..	1	..	2	49
Derby, Clearfield county.	1	21	9	1	3	..	34	1	..	1	..	2	36
Eureka No. 2, Clearfield county.	1	30	..	1	4	1	36	1	..	2	1	4	40
Eureka No. 5, Clearfield county.	1	124	29	9	9	3	174	2	2	5	3	12	186
Eureka No. 7, Clearfield county.	1	190	19	6	10	6	212	1	..	4	3	13	224
Eureka No. 8, Clearfield county.	1	132	19	4	9	6	170	1	..	3	3	7	177
Eureka No. 9, Clearfield county.	1	45	2	2	2	..	51	1	1	3	3	6	57
Eureka No. 11, Clearfield county.	1	98	12	3	4	2	119	1	..	3	3	6	124
Eureka No. 12, Clearfield county.	1	160	6	3	5	2	176	1	..	3	3	6	182
Eureka No. 13, Clearfield county.	1	134	14	3	6	2	159	1	..	3	3	6	165
Eureka No. 14, Clearfield county.	1	77	20	2	8	2	109	2	..	3	1	5	114
Eureka No. 15, Clearfield county.	1	31	5	1	6	2	45	1	..	3	3	6	49
Eureka No. 16, Clearfield county.	1	146	8	1	5	2	162	1	..	3	3	6	168
Eureka No. 17, Clearfield county.	1	102	12	2	5	1	124	1	..	3	3	6	132
Eureka No. 18, Clearfield county.	1	146	10	2	5	1	167	1	..	3	3	6	174
Eureka No. 19, Clearfield county.	1	32	3	3	3	1	41	..	..	1	1	4	45
Eureka No. 20, Clearfield county.	1	62	3	3	3	1	71	1	..	1	1	4	75

Excelsior No. 4, Clearfield county.	1	55	2	1	4	2	64	1	1	2	3	67
Almonk, Clearfield county.	1	32	4	1	3	2	42	1	1	1	3	45
Ward, Clearfield county.	1	14	1	1	1	1	16	1	1	1	3	17
Geartate, Clearfield county.	1	100	10	1	6	4	121	1	4	1	6	17
Glenwood Nos. 1 and 2, Clearfield.	1	74	2	3	1	1	83	1	3	3	7	90
Gramplan No. 1, Clearfield county.	1	54	2	2	2	1	61	3	2	2	7	68
Gramplan No. 2, Clearfield county.	1	49	1	2	2	1	54	3	3	1	3	57
Gulon, Clearfield county.	1	30	1	1	2	1	32	1	1	1	3	35
Henderson, Clearfield county.	1	16	2	1	3	3	22	1	2	1	1	23
Highland, Clearfield county.	1	25	1	3	3	3	29	1	2	2	4	33
Homestead, Clearfield county.	1	15	1	3	3	3	18	1	1	1	2	20
Hughes, Clearfield county.	1	15	1	3	3	3	20	1	1	1	4	33
Jefferson, Clearfield county.	1	32	10	1	2	5	46	1	3	3	2	22
Jefferson, Clearfield county.	1	115	15	2	8	5	145	1	1	1	5	51
Lancashire No. 1, Clearfield county.	1	55	10	1	3	1	72	1	2	2	6	131
Lancashire No. 2, Clearfield county.	1	51	10	2	3	1	56	1	1	1	3	75
Lane, Clearfield county.	1	30	1	1	2	1	64	1	4	1	2	33
Leland, Clearfield county.	1	33	2	1	3	2	45	1	1	1	3	69
Logan, Clearfield county.	1	39	2	1	2	2	30	1	1	1	2	46
Loraine, Clearfield county.	1	30	2	1	2	3	34	1	1	1	2	38
Mapleton, Clearfield county.	1	25	6	1	3	3	34	1	1	1	2	36
Mapleton, Clearfield county.	1	55	6	3	5	1	64	1	3	1	5	69
Morrisdale No. 1, Clearfield county.	1	65	6	4	5	2	105	2	1	3	26	104
Morrisdale shaft, Clearfield county.	1	85	4	4	6	2	78	2	5	3	20	125
Mt. Vernon No. 4, Clearfield county.	1	20	3	3	3	1	23	1	7	3	6	29
Mt. Vernon No. 5, Clearfield county.	1	84	37	4	11	1	137	2	6	2	10	137
Mt. Vernon No. 6, Clearfield county.	1	123	12	5	6	4	150	1	8	1	10	160
Mt. Vernon No. 7, Clearfield county.	1	40	2	1	2	1	45	1	1	1	1	46
Mt. Vernon No. 8, Clearfield county.	1	30	1	3	3	1	33	1	7	1	8	41
Ocean No. 1, Clearfield county.	1	26	5	4	3	2	38	1	1	1	2	40
Ocean No. 2, Clearfield county.	1	178	11	6	10	2	207	1	2	2	7	214
Pacific No. 1, Clearfield county.	1	49	9	2	3	1	64	1	1	1	3	67
Pacific No. 2, Clearfield county.	1	55	2	1	6	2	66	1	3	2	6	72
Pardee No. 1, Clearfield county.	1	26	21	3	15	8	263	1	9	2	14	277
Pardee No. 2, Clearfield county.	1	50	2	2	2	2	54	1	2	2	3	52
Queen, Clearfield county.	1	42	4	1	2	1	48	1	2	1	3	57
Reading, Clearfield county.	1	40	4	1	2	1	52	1	1	2	3	52
Rothrock, Clearfield county.	1	40	1	1	3	1	52	1	1	1	2	52
Shoof, Clearfield county.	1	40	6	2	3	1	52	1	1	1	2	52
Starfishire, Clearfield county.	1	40	6	2	3	1	52	1	1	1	2	52
Starfishire, Clearfield county.	1	40	6	2	3	1	52	1	1	1	2	52
Sterling No. 1, Clearfield county.	1	40	6	2	3	1	52	1	1	1	2	52
Sterling No. 2, Clearfield county.	1	40	6	2	3	1	52	1	1	1	2	52
Sterling No. 3, Clearfield county.	1	40	6	2	3	1	52	1	1	1	2	52
Troy, Clearfield county.	1	70	10	3	3	2	87	2	3	2	7	87
Victor No. 1 and 3, Clearfield county.	1	350	15	3	14	2	384	2	10	2	3	90
Victor No. 2, Clearfield county.	1	115	10	2	7	3	137	2	5	2	11	148
Washington, Clearfield county.	1	28	4	1	2	1	36	1	2	1	2	38
Webster, Clearfield county.	1	55	5	3	3	1	34	1	2	1	4	38
Black Diamond, Clearfield county.	1	121	3	2	3	1	136	2	8	2	12	148
Ghem, Centre county.	1	50	10	2	8	4	74	1	1	2	4	78
Central, Centre county.	1	52	13	1	2	2	68	1	2	1	4	72
Electric, Centre county.	1	25	5	1	2	2	32	1	1	1	2	34
Phenix, Centre county.	1	18	7	1	3	2	29	1	1	1	2	30
Pioneer, Centre county.	1	25	5	2	2	2	34	1	1	1	1	34
Ophir, Centre county.	1	60	10	3	4	2	77	1	1	2	4	81
Orient, Centre county.	1	122	6	4	16	3	90	1	33	1	4	91
West Eureka No. 1, Jefferson county.	1	50	6	6	17	3	211	2	3	1	35	240
West Eureka No. 2, Jefferson county.	1	150	30	5	17	8	250	3	31	1	37	267

TABLE NO. 3—Continued.

Names and Location of Collieries.	Number of Persons Employed Inside.						Number of Persons Employed Out- side.					Grand totals—inside and out- side.	
	Inside foreman or mine boss.	Miners.	Mine boys.	All company men.	Drivers and runners.	Door boys and helpers.	Total inside.	Blacksmiths and carpen- ters.	Engineers and firemen.	All company men.	Superintendents, book- keepers and clerks.		Total outside.
West Eureka No. 4, Jefferson county.	1	190	31	5	10	4	240	2	2	10	...	14	254
West Eureka No. 5, Jefferson county.	1	112	50	6	12	2	182	1	3	9	...	13	195
West Eureka No. 6, Jefferson county.	1	100	30	5	6	6	147	1	2	4	...	8	155
West Eureka No. 10, Jefferson county.	1	190	15	9	12	8	234	3	2	11	...	14	248
West Eureka No. 11, Jefferson county.	1	70	4	2	3	2	81	1	...	5	...	6	87
West Eureka No. 12, Jefferson county.	1	71	29	3	3	2	99	1	...	6	...	7	106
Kentuck, Clearfield county.	1	25	2	...	2	...	29	...	...	2	...	2	31
Summit, Jefferson county.	1	15	2	2	1	...	20	...	...	...	1	1	21
Total.	90	7,003	885	240	500	169	8,803	104	38	364	114	620	9,423

TABLE NO. 4—List of fatal accidents which occurred in and about the mines of the Eighth Anthracite Mine District for the year ending December 31, 1893.

Date of accident.	Name of Person.	Occupation.	Age.	Widow.	Number of Orphans.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 26,	Pauli Funow, ...	Miner, ...	45	1	3	West Eureka No. 2, .	Jefferson, ...	Back broken; died in one hour after receiving the injury; caused by fall of stone from roof, under which he was working. It not having been sufficiently supported.
Feb. 10,	Lewis McCanna, ...	do.	19	S.	..	Gramplan No. 1, . . .	Clearfield, ...	Instantly killed by fall of rock; a large stone that was loosened by slips on two sides and the coal having been taken from under it on the other.
Mar. 3,	William Lawson, Sr., . .	do.	52	1	1	West Eureka No. 2, .	Jefferson, ...	Instantly killed by fall of coal that he and his son were in the act of undermining; the piece of coal was 10 feet long, was undermined 4 feet and was loose at both ends.
10,	Mike Lucas, ...	do.	..	S.	..	Queen No. 1, ...	Clearfield, ...	Fatally injured by explosion of powder while in the act of filling a cartidge out of a 25-pound keg. His lamp having fallen from his cap into the powder.
17,	Philip Staley, ...	do.	..	..	..	West Eureka No. 5, .	Jefferson, ...	Killed by fall of coal and bone, which was loosened by slips in the roof.
Apr. 29,	Paul Prohosick, ...	do.	23	2	..	Eureka No. 7, ...	Clearfield, ...	Fracture of spinal column, resulting in death four hours after the accident; caused by fall of slate from roof in the working face on road.
May 5,	James Brady, ...	do.	38	S.	..	Fairmount, ...	do.	Instantly killed by a piece of drawslate 3 inches thick falling on him while he was at work mining on top of the coal.
June 24,	Daniel D. Hopkins, . . .	do.	48	1	6	West Eureka No. 1, .	Jefferson, ...	Instantly killed by striking his head against the roof while standing on the front end of a loaded car in a trip going outward, he having been on his way home.
28,	George Griffin, ...	do.	30	1	3	Ocean No. 2, ...	Clearfield, ...	Neck broken by fall of coal while he was in the act of undermining, after having removed the sprag and blasted the coal.
Aug. 31,	Moses Hughes, ...	do.	45	1	5	West Eureka No. 6, .	Jefferson, ...	Struck; a portion of the mine was on fire and the smoke, fumes and flame were carried to where they were working; death must have resulted instantly, for they fell not far from the working place.
31,	Aaron Hughes, ...	do.	22	S.	..			
31,	John Hughes, ...	do.	18	..	..			

TABLE No. 4—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Widow.	Number of orphans.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Sept. 19,	Matthew Shingle, ...	Miner, ...	35	1	1	Orient, ...	Centre, ...	Instantly killed by a piece of rock from roof falling on his back while he was in the act of loading a car.
12,	Gust. Anderson, ...	do.	16	S.	..	Eureka No. 20, ...	Clearfield, ...	Fatally injured by fall of rock from roof, dying in 30 minutes after the accident, his head having been crushed between the rock and car.
Nov. 29,	Thos. Ferns, ...	Trapper boy, ...	13	S.	..	Mt. Vernon No. 6, . .	do.	Fatally injured by being run over by a loaded car; he attempted to jump on the front end of car while it was in motion.
Dec. 12,	Parriek Hyde, ...	Mine boy, ...	15	S.	..	Sterling No. 7, ...	do.	Fatally injured by the fall of a piece of coal which weighed about 300 pounds, which fell while he was in the act of mining it, contrary to the orders of his father, who was absent only a few minutes before the accident.
12,	John Patrie, ...	Miner, ...	40	1	2	Lancaster No. 1, ...	do.	Instantly killed by a piece of powder falling on his head while he was working without sufficient stops, which he was working without sufficient stops.
Mar. 23,	Steve Slotter, ...	do.	30	1	3	Coaldale No. 3, ...	do.	Fracture of left leg and crushed about shoulders, which caused pneumonia, resulting in death several days after accident; accident caused by fall of coal while in the act of mining.
June,	John Batella, ...	do.	24	S.	..	Morrisdale No. 1, . .	do.	Instantly killed by fall of rock; he was drawing back heading stumps and left too much of the top unsupported; in driving the heading, about 2 feet thickness of rock had been blasted, leaving shattered sides.
June,	John (a Slav), ...	do.	22	S.	..	Troy, ...	do.	Instantly killed by fall of coal, while he was in the act of mining a piece loosened by a water-break close to sprag.

TABLE NO. 5. — *List of non-fatal accidents which occurred in and about the mines of the Eighth Bituminous Mine District for the year ending December 31, 1893.*

Date of accident.	Name of Person.	Occupation.	Age.	Married.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 31,	August Anderson, ...	Miner, ...	24	S.	Sterling No. 1, ...	Clearfield,	Crushed finger, requiring amputation: caused by lifting a car on the tracks and finger caught between bumper and rail.
Feb. 2,	Prosper Coudery, ...	do.	26	M.	Eureka No. 16, ...	do.	Leg fractured while pulling a car out of his room; leg caught between bumper of car and a tie in the road.
9,	Jacob Hofner, ...	do.	64	M.	Atlantic No. 1, ...	do.	Leg broken while mining; a piece of coal falling from a slip.
Mar. 10,	John Wilson, ...	do.	17	S.	Lancashire No. 1, ...	do.	Leg broken by a prop falling, a fall of coal having dislodged the prop.
18,	And. Muruschkak, ...	do.	23	S.	Jefferson, ...	do.	Leg broken by slipping on an iron rail and falling.
24,	Thomas H. Stevens, ...	do.	30	M.	Eureka No. 14, ...	do.	Thigh broken by a fall of rock, being a pot or bell common to this mine.
24,	Ben. Jones, ...	do.	16	S.	West Eureka No. 4, ...	Jefferson, ...	Bruise on head and back; caused by fall of top coal and bone.
27,	Oalent Roch, ...	do.	21	S.	do.	do.	Head bruised by fall of top coal.
27,	John Sankey, ...	do.	22	M.	Logan, ...	Clearfield,	Leg broken by being caught between bumper of cars on tram road outside.
29,	Albert Blacker, ...	Driver, ...	30	S.	Atlantic No. 1, ...	do.	Foot and ankle sprained; caused by the car while running pushing a wooden rail against his foot.
30,	Edward O' Rourke, ...	do.	17	S.	Acme, ...	do.	Fracture of leg and shoulder and dislocation of foot; caused by having loaded car run upon him.
April 7,	William Marron, ...	Miner, ...	43	M.	Pacific No. 1, ...	do.	Both legs broken by the fall of slate separating the top coal from the bottom member.
11,	And Caldwell, ...	Driver, ...	23	M.	Excelsior No. 4, ...	do.	Foot squeezed by being caught between the car bumpers.
29,	Fred Walker, ...	Miner, ...	21	S.	Eureka No. 14, ...	do.	Head cut and slight bruises about the breast and shoulders while mining under coal that had been loosened by blasting on the previous shift.
May 3,	Frank Butler, ...	do.	30	M.	do.	do.	Leg badly injured from the same cause as the above.
29,	H. Buckwalter, ...	do.	45	S.	Eureka No. 16, ...	do.	Collar bone broken by a fall of coal which he had neglected to sprag.
23,	Thomas Smith, ...	do.	16	S.	Eureka No. 11, ...	do.	Arm broken by stone dropping on it while he was reaching for a sticked out cross-bar.
23,	Elmer Reed, ...	do.	18	S.	Sterling No. 1, ...	do.	Leg broken while standing watching a car being put on the track by mine locomotive the trip moved suddenly against him.
June 27,	John Wilk, ...	do.	30	S.	Shoff, ...	do.	Leg broken by a small piece of coal falling while he was mining.
July 11,	John Rodki, ...	do.	65	M.	Mt. Vernon No. 5, ...	do.	Leg cut by the fall of a small piece of rock from roof.

TABLE No. 5—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
July 18,	William Deely, ...	Miner, ...	37	M.	West Eureka No. 6, . .	Jefferson, ...	Face burned and bruised by explosion of powder while he was in the act of pushing the cartridge into the hole with a tamping bar.
Aug. 8,	Morris Kampeburg, ...	Trapper, ...	15	S.	Eureka No. 11, ...	Clearfield, ...	Ankle badly sprained by his foot becoming fastened in a frog.
15,	James McDill, ...	Driver, ...	28	M.	West Eureka No. 12, . .	Jefferson, ...	Bruised and sprained ankle by foot having been caught between bumpers of cars.
15,	Hugh Strayer, ...	Miner, ...	35	M.	Mt. Vernon No. 6, . . .	Clearfield, ...	Ribs bruised by fall of rock that he ought to have taken down.
31,		do.	. . .	. . .	Eureka No. 20, ...	do.	Leg broken by fall of rock that he was in the act of taking down.
Sept. 12,	Emile Lonholm, ...	do.	26	M.	do.	do.	Arm broken by fall of rock.
21,	Adam Rothermond, ...	do.	58	M.	West Eureka No. 5, . .	Jefferson, ...	Leg broken by fall of rock.
23,	Louis Lezell, ...	do.	55	M.	Mt. Vernon No. 5, . .	Clearfield, ...	Back and leg injured by fall of slate.
26,	John Bossack, ...	do.	. . .	. . .	Eureka No. 18, ...	do.	Back and leg injured by fall of slate.
Oct. 13,	Peter Porter, ...	do.	20	S.	West Eureka No. 5, . .	Jefferson, ...	Face and hands burned by going back too soon to blast; he mistook the explosion of blast in the next room for his own.
28,	Marten Waple, ...	Dumper, ...	37	M.	Montana, ...	Clearfield, ...	Paralysis of both legs, resulting from concussion of spinal column; cause, falling of trestle thirty feet high; he was in the act of taking out a spike with a claw bar.
Nov. 18,	William Young, ...	Carpenter, ...	23	S.	Morrisdale shaft, . . .	do.	Hand smashed by having coal dumped on him while he was working in the shutes, fixing drop-pan; the dumper claims he did not know that Young was there at the time.

Ninth Bituminous District.

(FAYETTE, WESTMORELAND AND ALLEGHENY COUNTIES.)

Hon. Thomas J. Stewart, Secretary of Internal Affairs:

Sir: In compliance with the requirements of the eleventh section of Article 10 of the Bituminous Mine Act, approved May 15, 1893, I herewith present my first annual report of the inspection of the mines in this district for the year ending December 31, 1893.

This being a new district created out of the First, Second, Fifth and Seventh districts on June last, which embraces all the mines on both sides of the Youghiogheny river from Connellsville to McKeesport, and on the east bank of the Monongahela river to Lock No. 3, and all the mines on the Mount Pleasant branch, from Connellsville to Mount Pleasant, there being at present in the district 68 mines. Although commissioned on June 19, I have all the statistics and accidents complete for the year. There were mined 4,814,178 tons of coal, and the quantity of coke produced was 1,240,163 $\frac{3}{4}$ tons. Fourteen lives were lost inside the mines and one outside at the tippie. The non-fatal accidents numbered 35. One new shaft was put down and three new fans were erected, which makes 24 fans in this district. There are also 41 furnaces for ventilating purposes, while three others depend on natural ventilation.

A full report of the general condition and location of each mine is given together with the usual tables of accidents and their causes. There were three mine fires (one life was lost by one of them), and two explosions of gas whereby six persons were more or less injured. Two of the fatal and three of the non-fatal accidents occurred in the coke-producing region, where open lights are not used, and thirteen fatal and thirty-two of the non-fatal accidents occurred in the mines that ship the raw coal, and use open lights. This shows that the coke region mines are the safest to work in. While we believe this to be the fact, yet we say that the mining law is better observed there than at the other places. For instance, they keep a better supply of ventilation, and the miners' places are visited more frequently by the officials of the mines. At the large companies' mines, such as the H. C. Frick and McClure's, the miners places are visited every day by either the mine foreman or his assistant, and by the mine foreman in person at least twice a week, while at the other places the miners' places may be visited by some of them every other day and the mine

foreman not be seen in the working places once a month. I write this for the purpose of saying that there is no better prevention of accidents than for these places to be visited every day. I don't care how often the mine foreman goes around, he will see some one working under dangerous conditions, and to read the accident list in these reports will bear out this statement. The sanitary condition of these mines is generally very good, and more particularly so since the new law has compelled the employes inside to burn good oil in their lamps, instead of as heretofore, when the drivers in particular burned nothing but carbon oil mixed with some other crude oil, and imagined they could not keep their lights burning with pure lard or cottonseed oil. This has had one bad effect, for it brought cheap, inferior oil to the stores for every one to use, and it will take some time to get rid of it. We have solicited the storekeepers to procure the best that can be had, as the results are plain to be seen in the different atmosphere of the mines since its use. Another beneficial feature in the new law, is that regulating the use and quantity of powder, although some little reform is needed in this direction yet, and this lies a good deal in the power of the mine foreman to accomplish. If two men have to work in one place where the coal is thin, it is impossible for them to shoot enough coal in the evening to keep them busy the next day, and permission has to be given them to shoot during the day; where, if each man had a room to himself, this could be avoided; and frequently bad management is the cause of the omission. Notice that at some places they are always hard up for rooms for the miners to work in. The law regulating the cleaning and trimming of the safety lamp for the employes is not as satisfactory to the miners as some predicted it would be, but time will determine.

The number and causes of accidents, with the number of wives who were left widows, and children left orphans, for the year 1893, is given:

	Fatal.	Non-fatal.	Widows.	Orphans.
By falls of roof, ...	9	15	4	8
By falls of coal, ...	2	1	1	4
By mine wagons, ...	2	7		
By suffocation from smoke, ...	1			6
By powder, ...	1	6		
By explosions of gas, ...		6		
Totals, ...	15	35	5	18

Below is a summary of the statistics reported to this office for 1893.

Number of new mines opened during the year, ...	1
Number of mines in the district, ...	68
Number of mines operated during the year, ...	62
Number of miners (men) employed, ...	5,719
Number of miners (boys under 16 years of age),.....	289
Number of "daymen," including mine foremen, drivers and trappers, ...	809
Total inside, ...	6,817
Total number of kegs of powder reported used,.....	5,354
Total number of horses and mules, ...	487
Total number of coke ovens, ...	4,921
Number of tons (2,000 pounds each) of coal mined,.....	4,814,178
Number of tons of coal (2,000 pounds each), shipped, ...	2,970,688 $\frac{1}{2}$
Number of tons (2,000 pounds each), coke produced,.....	1,240,163 $\frac{3}{4}$
Number of tons produced per fatal accident, ...	320,945.2
Number of tons of coal produced per non-fatal accident,..	137,547.92
Total number of days the mines were in operation,.....	11,189
Average number of days for each mine, ...	180

In additon to the usual reports I enclose report of the Cottage State Hospital for the three years of its existence.

All of which is respectfully submitted,

BERNARD CALLAGHAN,

Inspector.

Connellsville, Fayette county, Pa., March 29, 1894.

Description of the Mines on the Pittsburgh and Lake Erie Railroad.

Adelaide.—All the coal mined at this place is made into coke. They have 342 ovens and a capacity for producing more if trade would warrant it. The mine is in good condition, with an air current of 89,100 cubic feet sweeping through it, and although a gaseous mine, I could not detect any explosive gas on my last visit. Thomas Harris, mine foreman.

Fort Hill and Moreland Slope.—These two mines are virtually the same mine, being all one operation inside and outside. All the coal mined is made into coke at the plant, which has more than 400 ovens. This is an excellent operation inside, one part operated by rope haulage and another part by mules hauling to the outside. The slope side is worked exclusively with safety lamps, and the upper part with open lights. This part is driven through the hill to daylight and is working on the crop side. These places are in good condition and very well looked after. I found very little explosive gas in the slope side.

This part of the mine suffered from coke smoke during the afternoons on account of the fan being close to the ovens, and a blower, but the mine foreman discontinued some of the ovens opposite the fan and that had the effect of clearing away the smoke. William Sloan, mine foreman.

Wick Haven Shaft.—This is quite a new operation. It was commenced on July last and having only about 60 feet to sink through rock to the coal, it did not take long to finish. As the coal at this place is all under water level, it is expected plenty of explosive gas will be encountered, it being the next place below and adjoining Rainbow mine, where Inspector Duncan, along with four others, were seriously injured by an explosion during March last, but the management at this place is taking every precaution. They do not permit an open light in the mine, and although it is a great disadvantage to the miners working in an entry double, they are going to be on the safe side. They also intend to make this a very fine mine, and so they should, with about nine feet of the best of coal that will be shipped to market in lump, nut and slack. They have also built a fine lot of houses about a quarter of a mile above the shaft, with splendid accommodations for their workmen. Wick, Morrison & Co. is the firm name. W. M. Goldsboro, mine foreman.

Rainbow Mine.—This mine is the first one next to Connellsville in the thick basin, which ships the coal in cars to market, no coke being made on this road below Dawson. A fire occurred at this mine last March and an explosion of gas caused by it resulting in the serious injury of Mine Inspector Duncan and four others, of which a description is given in the accident list. This mine has been put in good condition since, and although it is a dangerous, gaseous mine, I must give credit for the strict way in which it is managed now. Dennis Wordly, mine foreman.

Banning Mine.—This is driven on the dip of the coal and has dip enough to take the rope down to haul the loaded wagons out. A knuckle of 6x200 feet long was graded at this place, and another stationary engine put in the mine to haul out of the dip. This is run by compressed air from a new Norwalk air compressor outside. This main slope, although going to the dip, generates explosive gas in large quantities. I had to complain of the careless way in which this gas was managed and also of the drainage. The ventilation is thick through the day from smoke caused by firing shots. William Holsing, mine foreman.

Darr Mine.—This mine, being next to Banning, lays the same way, but has two haulages down two main headings. The coal is opened on the butt to the dip, then face entries right and left off the main slope, and the rooms are turned on the butt of the coal. This system

makes sure of the rooms being dry, because of the raise of the coal going up the hill. There was some prejudice manifested at first to the butt rooms, but time has proved that a man can mine as much coal on the butt as he could on the face, and the system is more advantageous in the drawing of ribs to both miners and operator. By this method of working one mule and driver can haul about twice as much coal and do it with more safety than by the older methods of working, namely by flat headings and then driving butt entries for rooms. This mine gives off explosive gas very freely in slope headings, but is well looked after, the brattice always being kept well up to the face of the workings. Drainage and ventilation also good. John Smith, mine foreman.

Port Royal Mine.—This mine only commenced to ship coal in December after a period of 10 months' idleness, it having been drowned out by water, which was pumped in to extinguish a mine fire, of which a description is given in the accident list. The coal at this place seems to be at the edge of the big basin and does not show up as well for thickness and evenness as the coal further up; but it holds its own for explosive gas. The coal is mined by coal cutting machines and is hauled to shaft bottom by locomotive driven by compressed air. A new air course is being driven from the fan into the interior of the working, and a sweeping current of air was passing along all the entries. At this writing the falls are not all cleaned up yet, but when they are, the mine will be in good condition again. I measured 18,000 and 2,000 cubic feet of air at the face of all the entry workings. Robert McIlroy, mine foreman.

West Newton Shaft.—This is the first mine working next the thick bed or Connellsville basin, and it is only about four feet eight inches thick. They are leaving about one foot of coal in the bottom, as is the case in all the thin, hard coal in the Pittsburgh district. This mine is in good condition both as to ventilation and drainage. Robert Hall, mine foreman.

Ocean No. 5 Mine.—This mine, although but a short distance from West Newton shaft, is a drift mine on the top of a hill that necessitates the use of a gravity plane to let the coal down to the railroad track. Average thickness of coal at this place 4 feet 6 inches. Ventilation and drainage good. Robert Watson, mine foreman.

Forrest Hill Mine.—This is a new mine and did not have much of a place in last year's report. The coal at this mine is worked by coal cutting machines of the Jeffrey pattern, and the entries are driven close to the bottom, about 5 feet 8 inches in height. They had another machine here for awhile, called the "Stanley Header." They cut about 1,800 feet of entry with it, then took it to the coke region. This machine digs the coal and loads it also, and is well adapted for

fast entry driving. Each time I visited this mine it was in good condition. John Simpson, mine foreman.

Pacific Mine.—This is also a drift mine and is and will be a very extensive one. They have a big swamp in at 26 entry on main tunnel running across in a slanting direction from No. 23 entry, dipping 15 feet; then it rises to its normal condition again. At this place, where the trouble exists, the roof falls in the entries close up to the face of the coal and gives off explosive gas in dangerous quantities, and, being a long way in, the ventilation is too weak to disperse it. But the company is trying for the lowest place to put down a shaft to pump the water out and put a fan upon, which, when accomplished, this will be one of the best mines in the district.

Sarah Mine.—This is a new mine, opened a short time before last year's report was presented. It is but a small operation and never will be anything else, owing to the comparative small area of coal they have to work. If the ventilation at this place was better it would be in very good condition. Ed. Bell, superintendent and mine foreman.

Ocean No. 2.—This is a drift mine and a very large one. It takes in Atlantic, which was a separate portion before the Youghiogheny River Coal Company purchased it. This mine works about 300 men. I have visited it three times and am very sorry to state it was not in a very satisfactory condition. I complained so strongly that the mine foreman has since invited me to come and see its improved condition. I only hope it will continue to improve, as I think it is unpleasant for all parties concerned for the Mine Inspector to have to complain at every inspection. John Mathews, mine foreman.

Ocean No. 4 and Southwest.—These are two mines separate in operation outside but all one inside, and a description of the one will serve for the other. Very little work has been done at this place since my appointment, so very little can be said about them. The ventilation was not sufficient on my first visit, but they put a hole through to the surface at the inside of one of the entries and built a furnace at it and it has greatly improved its condition. Everything else seemed to be well looked after. Thomas Suffolk, mine foreman.

Painter and Cornell's Mine.—This mine has been in existence a little over a year, although it took in some old workings of long standing. It is in the best of condition and I think will always be so, because I know the management. E. B. Davis, mine foreman.

Dravo.—A drift mine located opposite Robbins station. They have built a good furnace and sunk an air shaft for it about 90 feet, and although there is no stack on it yet, it would give good results if they would keep a fire in it. John Mathewson, mine foreman.

Brown's No. 1 Mine.—I have to record one of the greatest improvements in this district for this mine. They have erected a new ventilat-

ing fan 20 feet in diameter, which gave 55,000 cubic feet per minute, although the airways were not yet completed. With the number of openings in the mine this fan will make a splendid record. This company has also patented a coal cutting machine, which has been tested at their mine, and I think a great deal of it, because of the difference of the size of coal it makes while mining. Very little dust is made, which is a great recommendation for it. The power they use is electricity.

Brown's No. 2.—Only a few entries having been worked since my appointment, I visited it once only.

Mines on Belle Vernon Road.

Belle Bridge Mine.—Located on east side of Monongahela river and opened on front of same and driven clear through to the Youghiogheny river. The old or first workings are nearly exhausted. There is no solid coal to work any more, but a large quantity of stump. They have opened a new drift close to the old one on Monongahela side and employ more than 40 men at present. The coal at this place is very low, being but 3 feet 2 inches top bench and 10 inches bottom bench, and is the best coal to dig on that road. Ventilation and drainage was good. H. Henderson, mine foreman.

Lovedale Mine.—This mine, also drift, has been idle since my first visit and I have had no chance to see the condition of it, but the mine foreman is kept working all the time, and no doubt he will have it all right when it starts to work again. George B. Kistler, mine foreman.

Horner and Roberts Mine.—There are two openings at this place, one going to the dip and the other one on the hill. The dip side was not working when visited either time, so I only visited the one that was in operation. I found it in pretty good condition, considering the broken time it had worked. William Barker, mine foreman.

H. D. O'Neil's Mine.—This is partly an old and partly a new mine; the old part being nearly exhausted and the new part having been opened up in good style with a new haulage road into the middle of the field. This mine promises to be a good paying one in the near future and there is not much to complain of at present. They have put in two electric motors for coal cutting machines. Archibald Cowan, mine foreman.

Mines on the Baltimore and Ohio Railroad.

Baltimore and Ohio Mine.—This is a small operation employing about 24 persons all told, the coal being all used by the locomotives on the railroad. They had some trouble at this mine with a fire smouldering in an old opening in front of the hill where it has fallen

in. They built brick stoppings around it inside and they have had no trouble since, and when visited last it was in good condition. John Stevenson, mine foreman.

Davidson Shaft.—This mine is located close to the Youghiogheny river and extends in every direction. They are working across under the river to a large tract of coal on the other side. Though under water level they are not troubled very much by explosive gas. They work exclusively with improved safety lamps. They built a new brick lamp house and put in an air compressor, and everything is in first class condition. Craford Stilwagon, mine foreman.

Plumer.—This mine is more a drift than a slope, the grade being mostly on outside, where the ovens are. They are the same operation as the Davidson shaft and can be charged by either. They are connected inside as well. The water being drained to shaft makes the troubles very light at this place, and they have fan ventilation. The mine is in good condition. John Stevenson, mine foreman.

Henry Clay Mine.—This is a slope mine, working in connection with Davidson shaft and Rist mine, inside. They sunk an air shaft and put stairs in it for the miners to go out and in, which is a great improvement on traveling on the slope. Although this mine does not generate any explosive gas it is worked exclusively with locked safety lamps, and, like the rest of the H. C. Frick mines, it is kept in first class condition. John Keck, mine foreman.

Tyrone Mine.—This is an old mine and has all the solid coal worked out. There are a number of old entries and ribs to be worked out yet, and although this makes mining rather difficult, they have not had any accidents, as the place gets close attention and is kept in good order. Thomas Kane, mine foreman.

Sterling No. 1 and Sterling No. 2 Mines.—These mines have not worked any since February and have not been visited.

Jackson Mine.—This is one of the oldest mines in the coke region. They have not much solid coal in it to work. There is one part of this mine on fire along the front of the hill, which is a source of annoyance to the management; they have it bratticed off as well as possible, and should it break through on the workings, they have a fan at the far end to overcome any danger to the men. Everything else is in good condition. George Moore, mine foreman.

Eureka Mine.—This mine is worked by two openings, the coal being in the thick basin, and it is the nearest mine to Connellsville on the Baltimore and Ohio Railroad that ships its product to market just as it leaves the mine. The thick basin is chiefly used for making coke, but this place is getting close to the edge of the basin and it makes splendid lump coal for shipping. They have two ropes to haul out of these openings, with one stationary engine outside. The workings have an inclination of about three and one-half feet per 100, which

makes drainage easy, and with a good fan the ventilation is good and well distributed around the workings. James Bagley, mine foreman.

Smithton No. 1 Mine.—This is a drift mine, the coal being hauled out by a tail rope system nearly two miles long, together with an incline plane inside. The coal raises on the butt about $4\frac{1}{2}$ per cent., and is hard on stock. I asked them to change their system while they had an incline. They could put their rooms on the butt as the coal here is about 9 feet thick. It would be no inconvenience to mine it that way. They gave the matter consideration, but trade being so poor they have shut down entirely for the present. Ventilation and drainage could be improved. John N. King, mine foreman.

Smithton No. 2 Shaft.—This place has worked but very little during the year and is shut down at present. Everything in the mine is first class. Coal 9 feet thick. Thomas Perkins, mine foreman.

Port Royal No. 1 Shaft.—Little can be said about this place as they only hoist enough coal to fire the boilers and supply houses, and it is hauled from No. 2 shaft underground. There are plenty of ribs and stumps to work out in the mine, but the chances are that they will not be worked out for some time to come.

Euclid Shaft.—This is a small shaft although in a good coal territory, the coal being about 9 feet thick, and it is the last mine on this road that is working in the thick bed of the Connellsville basin and which ships lump, nut and slack, although they have a few ovens to coke their slack when the coke trade is good. This mine gives off a small quantity of explosive gas, but it is very well looked after and the mine kept in good condition. It suffered from the drowning of its neighbor, Port Royal, and the map shows over 600 feet of solid coal and 900 feet at the place where the water came through the most rapidly, and as the water was pumped down into the Port Royal mine the water ceased in this one, which proved that it came from that source. William Goodfellow, mine foreman.

West Newton Shaft.—This is a shaft mine, and the portion of coal that was mined in this shaft at the first part of its operations was reached to a point where it is more convenient to mine by No. 2 shaft, so that no coal is hoisted at this one, only for boilers and house use. Although there is some coal to be mined in it yet, it will be some time before it is worked out. It is very convenient for the miners and others who live on same side of river to travel by to the No. 2 mine.

Yough Slope.—This mine is troublesome on account of bad roof; and it gives off a little explosive gas, but is being well looked after and kept in pretty good condition. James Latimore, mine foreman.

Amyville Mine.—This is a drift mine and quite extensive inside, and it is being kept in good condition considering the disadvantages

of hauling the coal up hill. Nearly all the butt entries are through to daylight and with a good furnace the ventilation is kept all right. Samuel Jones, mine foreman.

Ocean No. 1.—This is a drift mine and extends about two miles in from pit mouth, the coal being all hauled by mules. An experiment of a modified long wall system is being tried at this mine. It is proposed to take the breadth of three rooms with two roads at a distance of 64 feet apart, the rooms to be twelve feet wide, the slate to be gobbed on one side. When the room is finished the rib is cut over, which makes an open face of 54 feet, 27 feet for each road, but it will be noticed that on one road the slate has to be shifted all the way along the full distance of the room. This is certainly a disadvantage to the party working on that side, and the men will have to be plentiful if they can be gotten to remove that slate without pay. These rooms have to be paid for at the rate of 50 cents per yard on account of their being narrow, they being only twelve feet, the regular distance being 21 feet. In my opinion, there are better methods of working this vein than this one, and I also believe the one experiment on this one will satisfy them, although Mr. Gressley, the engineer directing this, is of great fame. This mine is kept in good condition. Josiah Suffolk, mine foreman.

Dillworth Mine.—This mine is nearly exhausted, as there are only about two acres of solid coal to work; also some ribs and stumps. It is kept in good condition, both in ventilation and drainage. Thomas Whitman, mine foreman.

Shaners No. 2.—This is entered by a short slope driven through the rock measures to the coal, which lays quite flat. Slack veins appear very regularly in this mine, which makes it troublesome. A little explosive gas also appears now and then. Everything is kept in good condition. Reuben Street, mine foreman.

Guffey Mine.—This is also a drift mine and is quite extensive inside. My last air measurement at the furnace was 45,000 cubic feet per minute, yet it did not seem too much for the workings, as they are scattered over a large area. There are none of these mines working the thin vein that put up check doors as prescribed by law. Neither can I enforce the law on account of the small space made in cut-throughs. I have ordered the cut-throughs to be made larger before putting up check doors, and I intend to enforce it as soon as they can be made large enough. Under the present circumstances this mine is in good condition. I. C. Price, mine foreman.

Big Chief Mine.—A drift; the coal is hauled out by tail rope system and flat workings. Small furnace and poor draft; some rooms being opened ahead of cut-through. There are mines better looked after than this one. H. D. Thompson, mine foreman.

Osceola Mine.—This is one of the oldest mines on this road, but it

will last quite a long time yet, as they are opening up a new field, which will keep up the demand as long as some of the new operations. I have always found the mine in good condition. John Owens, mine foreman.

Mines on the Mount Pleasant Branch.

Rist Mine.—This mine is kept well up to the requirements of the mining law. Charles Wingenroth, mine foreman.

Summit and Eagle.—These mines are connected inside and outside, and can be classed as one or two operations at will. They are up to all the requirements of the law. Edward Mooney, mine foreman.

White Mine.—This mine worked very little during the year and is still idle at this writing, hence has not been visited. Terrence Donnelly was mine foreman.

Franklin Mine.—This mine shut down a few days before I made my first visit. I went through it, however, to see the condition of it, and found it first class. B. F. Keister, operator.

Valley Mine.—This mine has worked pretty steadily all the year. One side of the mine is pretty well worked out, but on the other side is a large tract and well opened out. An additional rope has been put in this side during the summer, which works to satisfaction. The mine is in good condition in every respect. James Jackson, mine foreman.

Dexter Mine.—This mine has not worked since my appointment hence was not visited.

West Overton Mine.—This is a small concern and will soon be worked out. The surface is very light and falls to daylight every fall, nearly. This is the only means of ventilation they have, but it serves the purpose well enough. John Boyle, mine foreman.

Painters Mine.—This mine is owned and operated by the McClure Coke Company. The coal is being worked out in the first hill and a tunnel is being worked for a locomotive to run it to haul the coal from back hill. The mine is in excellent condition. M. Picard, foreman.

Buckeye Mine.—This is a slope mine on the dip of the coal, though it is very slight, but the elevation of the bins gives the trip speed enough to enable it to reach the landing. The ventilation is produced by fan. No explosive gas has ever been encountered yet; everything is in good condition. G. Burns, mine foreman.

Mullen, Hazlet Slope, and Hazlet Shaft.—Not working and not visited.

Emma Mine.—This is a very small concern, working only 10 persons. It is a small coal field and small plant, and will last quite a long time yet. Adam Whitehead, mine foreman.

Rising Sun Mine.—Owned and operated by the McClure Coke Com-

pany; is a drift mine, and kept in good condition. Thomas Evans, mine foreman.

Bessemer Mine.—This mine has just started up after being idle for three years. Although having been idle so long, it was not in very bad condition. John Nary, mine foreman.

Mines on Southwest Pennsylvania Railroad Branch.

Moyer Mine.—This is a slope on the dip of the coal measures. Owned and operated by J. W. Rainey. A new slope has been run through the old workings to the main part of the coal field. Considerable grading was necessary to make it right, and when completed it has made a splendid road and put their mine in good condition for a large output. John McDonald, mine foreman.

Pennsville Mine.—Is owned and operated by J. Sherrick & Co.; is not a very large concern. It was in very good condition when I visited it, but shut down shortly after on account of dull trade. William Kooser, mine foreman.

Donnelly Mine.—Owned and operated by the McClure Coke Company. This mine has rather an uneven lay, but advantage has been taken of its unevenness and it promises to be a fine operation when everything is completed. Andrew Neish, mine foreman.

Mayfield Mine.—Is connected with Donnelly and belongs to same company. This mine, like the others of said company, is in excellent condition. Luther Fleisher, mine foreman.

Union Mine.—Not working on account of dull trade, so was not visited.

Fire in the Rainbow Mine.

A fire occurred in the Rainbow mine in the latter part of February, and was not extinguished until five persons had nearly lost their lives by an explosion from it, namely: William Duncan, who was Mine Inspector at the time, William Goldsboro, Oliver Branthoover, Josiah Rhodes and Edward Harrington. This fire originated in a cut-through between main and parallel entries. These entries were running so close together that one cut put them through at the place where this fire originated. Both entries gave off explosive gas quite freely. The miner who worked in this cut-through on that day gave me this version of it. He had shot down the coal and was waiting for the tracklayer to lay the road with T iron rail and had shoveled some of the coal back in the meantime; but, not caring to wait any longer, he went home about three o'clock in the afternoon. He says he did not see any fire in his place then, and says if there had been any that the tracklayer would have seen it, because he was there until about five o'clock, or two hours later than himself. Be that as

it may, that is where the fire originated, and it was not discovered until the fire boss entered the mine on the following morning to inspect it, and seeing smoke coming from the outlet, believed there was fire somewhere in the mine. Getting somewhat alarmed, he ordered the speed of the fan to be increased, which was done, and although it was a new method of dealing with mine fires it did not extinguish this one. The mine was then bratticed up inside for two weeks to exclude the air, when it was thought to be safe to open it again. After the stoppings were taken out, there was found to be large quantities of explosive gas. The mine foreman, with some others, commenced to get the mine in condition again, doing everything to the best of his ability to clear away the gas. After working in this unhealthy atmosphere some time, they concluded to go outside and rest a while, and it was fortunate for them that they did so, for it was but a short time after they got outside when an explosion took place which broke the fan and blew out all the stoppings between the main and parallel headings. They then concluded to send for Mine Inspector Duncan, and although it was on Sunday, he hastened to the place and arrived there about 7 o'clock that evening. After learning the situation, they went into the mine to see in what condition it might be. They saw that the explosion had blown out all the stoppings and other rubbish, which was scattered on the roadways. The ventilation was the first thing to attend to and they commenced to rebuild the stoppings. They worked until about 2 o'clock in the morning and had reached as far as No. 7 butt entry, and put up stoppings on the main and parallel headings beyond this point, which allowed the air current to pass through the cut-through opposite this place. A short time before this Mr. Duncan went up No. 6 and 7 entries to see in what condition they were and found explosive gas at No. 2 room on each entry, and it was evident that it was full to the top in each entry, because they generated explosive gas at the face, which was about 600 feet from this point. This could be dealt with providing there was no fire inside, but there must have been some suspicion that the fire might not have been extinguished, for they intended to make these stoppings on the main headings strong enough to hold water. In the meantime, they went outside for lunch and while they were outside Mr. Duncan expressed his belief that the danger point was passed and they could go inside again and finish these stoppings. They had only been in a short time when Mr. Duncan and Mr. Rhodes went back for some lumber which was quite a distance from where they were working, the last explosion having made the road so dirty that they could not get the supplies hauled any nearer to where they were needed. One more stopping had to be completed opposite No. 6 entry, and Goldsboro, Branthoover and Herrington had just completed it, when suddenly they heard a noise and in a moment a flame swept past them,

burning these three and injuring the other two, but Mr. Duncan the most severely. It was with great difficulty and perseverance, to say nothing of the singular absence of after-damp, that they got outside, because no help reached them until they were over half way out. Mr. Duncan was carried about 400 feet and was lying unconscious when found. The strangest thing about this is that the flame should pass outwards beyond No. 6 and 7 entries and not ignite the gas in them, for if it had, the fate of these men would have been terrible. No more experiments were tried, but water was pumped from the outside and the mine filled up, which might have been a proper plan to have adopted at first. This fire caused a great expense and loss of time to the company and might have cost these five men their lives and could have easily been prevented had shot firing been in charge of some competent person. This company does not take any more risks, such as this, since, as one of the fire bosses goes through every working place every evening after the day's work is over and thoroughly inspects them, which is the proper plan to avoid like occurrences. Too much precaution cannot be taken in mines such as these.

Banning Mine.—On the night of the 29th of April a fire occurred in this mine, which was not discovered until the following morning, about half-past seven o'clock. It having been Sunday, no one was working and the mine foreman happened to go to the mine and discovered smoke, and he endeavored to go inside to see what the cause was. After several attempts he was able to discover that there was a fire somewhere down about the foot of the slope. They bratticed up the mine and then commenced pumping water from the river into it and continued from about 2 o'clock p. m. Sunday until the following Wednesday. Thinking enough water had been pumped to drown the dip workings where the fire originated, they concluded to open it up again and see if the fire was extinguished, but were surprised to find that it was still burning. Another large pump was procured and kept working until the 9th of May, when it was opened again and found safe. When the mine was entered, it was found that the fire had traversed the main slope about 100 yards and extended along it to the north and south flats, where several wagons were standing, and set fire to them. The roof was torn down at several places and the side of the heading burned in some places about two feet in depth. It was found that the fire originated in a cut-through from a shot fired by a miner, but he said that he did not see any fire when he left his place. Were it not that there was plenty of water at hand this would have been a very destructive fire; as it was, it cost the company \$1,000, besides the loss of time.

Port Royal Mine.—A fire broke out in this mine on the evening of February 1 whereby one life was lost. The fire was discovered on the same evening through an accident happening to the compressed air

line that is laid in the mine to work coal cutting machines and the pumps. There are two shafts at this place, one on each side of the Youghiogheny river, which are connected inside by an entry under the river. The night fireman not being able to keep up steam for this air line, informed the machinist that there must be a leak somewhere in the line, and he went over the river to tell the mine foreman to get some one to go into the mine and locate the leak. The mine foreman told him to get John Gittens, the assistant mine foreman, to go in and locate it. Gittens went inside and the machinist told him to turn off the valve where the pipe lines that supply the machines and cut them off, and if the leak was in that section of pipes it could be fixed while the section that supplies the pumps was working. Having turned the valve off, he called up the shaft, which is only 185 feet deep, to the machinist to know if it was all right. He answered that it was not, and that was the last that was heard from him, as he had by this time gone farther inside. It was but a short time after when the machinist discovered smoke coming up the shaft as if something was on fire. He crossed the river to give the alarm and tell the mine foreman, Robert McIlroy, who gathered up his inside help and repaired to the mine and got inside to where six men were working and got them out. It was evident then that a fire was burning a long distance inside. Continuing inwards, expecting to see Gittens and learn something about the fire, they got to No. 20 entry and saw a trap door standing up burned red. They knocked it down and got behind the fire on the windward side, where there was some water but not enough to extinguish it. Could they have worked on the other side of the fire there was plenty of water, but the smoke prevented them. As it was, they were nearly overcome. If the fan could have been reversed, there was enough help to fight it then. Being exhausted and powerless to do any more that night, they were at a loss to determine what should be done next. The idea of drowning the mine seemed to be the only remedy, so they concluded to cut the compressed air line and pump water through it, as it was in a very favorable place for this, there being a swamp close to where the fire was. During all this time no one had seen John Gittens, the assistant mine foreman. The pipe line was then cut and the mine bratticed off and water pumped from the outside to drown the fire. It was a very long line of pipe, and being reduced in size from 6 inches to 2 inches diameter it took a long time to reach the fire, consequently it got a great start, but they kept on and never did anything other than pumping for nearly three months. During all this time it was natural to suppose that there would be plenty of schemes to put fires out discussed. One eminent engineer, said he could extinguish it with carbonic acid gas, which could be made at the mines chemically and injected into the fire. His plan was received by the company and a trial was commenced. The rea-

son of this plan being accepted by the company was that some officials seemed of the belief that the water going into the fire by such a small pipe would only intensify it, and that the difference of level from where the fire was burning and the top of the swamp outside of the region of the fire, a distance of over 1,500 feet would be burned down and traversed beyond said hill, although there was over two feet of difference after the water was or could be sealed to the roof if the fire did not reach beyond this point. The apparatus for making the carbonic acid gas being now ready, it was necessary for them to go inside the mine to break a hole in the stopping for its appliance, and as soon as this was done the air commenced to rush inwards with great force and in a short time after an explosion occurred and only for the small space between the water and the roof these men would have surely perished. When the men went into the mine to cut the brattice they discovered the dead body of Gittens, the assistant mine foreman and endeavored to bring it out, but this explosion prevented them from getting into the mine until it was drowned out and then pumped dry again. A great many experts were called to devise what was best to do because it was evident that the fire was still burning. This involved a serious consideration, because to drown this part of the mine would mean only about 15 acres, whereas if the whole mine had to be drowned it meant about 400 acres. Notwithstanding some very sensible arguments in behalf of part only to be drowned where the fire was in progress, the company was advised by some of them that the whole mine should be drowned. So the whole mine was drowned by sinking two bore-holes near the river and turning the water into it, which it took six months after to pump out, and it was nine months before the body of Gittens was recovered. To describe the condition of the mine after the water was pumped out would occupy too much space and time. The important matter in regard to these mine fires, is to determine how they originate, and as it is only an opinion in this case, I will give it as the mine foreman, Mr. McIlroy gave it to me, and it would seem to be the correct one. On the day the accident occurred the whole mine did not work all day, and part of it continued to work with one driver. The driver, having some time to wait for his last trip, sought to change the wick in his lamp before he went after his last trip, it being then about three o'clock in the afternoon. Having changed the wick, he carelessly threw the small piece of burning wick aside to a small recess where one of the foremen generally rested in his intervals of visiting the miners. There was some waste or rubbish in this hole that would keep up a slow combustion, and close by, on the other side of the heading, were two wagon loads of new ties, which were very dry, and it was just the right kind of a place for a fire. The driver admitted having done this at the time of the accident, but afterwards denied it.

This is the place where the fire originated, and as this took place about three o'clock in the afternoon and was not discovered until after eight o'clock, we can see it had time enough to get a good start, and but for the accident to the pipe line it might not have been known until later, although the damage to the mine could hardly have been worse. Yet these six men that were working on night turn in the mine that night might have perished before they could have been gotten out. After the water had been pumped out of the inside dip, close to where the fire was, evidence of the explosion was seen by wagons having been broken and a drill being thrust into the rib of solid coal. Dust along the rib marked the space between the top of the water and the roof, and it showed about fifteen inches at the narrowest place and more as the measures dipped. The fire had reached within about 500 feet of the top of the swamp. But for the water, which cushioned the force of the explosion, it certainly would have been bad for those who were in the mine then. The cost of this fire to the company, not to say anything of the loss of time, which was about ten months, was in the neighborhood of \$60,000, besides the loss of one valuable life.

Fatal Accidents.

On the evening of February 1 John Gittens, assistant mine foreman at Port Royal mine, lost his life by smoke from a mine fire, of which a brief account is given in this report.

February 19 Desert Demler, miner, at Shaner's No. 2 mine, was killed in his room by working under slate which was in a dangerous condition, as he had been warned not to work under it without putting posts under it.

At West Newton shaft on March 24, Luther Leppold, cager, in going to the wrong side of the road at the time a loaded trip was coming in, was caught before he could get out of the way and lost his life.

At Ocean No. 2 mine on March 27, F. C. Vatch lost his life in No. 24 room, No. 2 south entry by working under slate that was in a very dangerous condition. It was 10x5x1 feet, standing with only one post under it. The room having been driven to its destination and the pillar cut over and he was working it backwards about five yards, and all this mass of slate, having had only one post under it. The danger must have been apparent, not only to himself, but to the mine foreman or his assistant, if they made their regular visits to the places.

On May 3, Frank Crain, miner, 35 years of age, was killed in Darr mine in No. 15 room, No. 3 entry. He and another Italian were working together in one room and had fired a shot in the coal which also shattered the slate and left it hanging in a very dangerous condition, but rather than pull it down on top of their coal, they risked their lives by working under it in loading the coal and it fell, killing one

of them. These men seemed too ignorant to recognize their danger or know how to protect themselves in such cases. He left a widow and two children in Italy.

At the Rist mine on May 12, John Haley, 38 years of age, wife and four children, was killed under the following circumstances. He was working on a rib and wanted to make a break in the rock, and when drawing out his posts it came down suddenly and buried him. When found life was extinct.

June 1, at Emblem mine, a young man, William Eppley, was killed by a fall of slate in his room. He kept working under it, although he knew it was dangerous, without either putting up sufficient posts or taking it down. He had not been working long at digging coal, although he always worked about the mines. Having been only 18 years of age and inexperienced, he did not seem to realize his danger.

George Stoka, miner, at Forrest Hill mine, on June 28 took a keg (25 pounds) of powder into the mine to blast his coal. Knowing it was against the law to take this quantity into the mine at one time, he thought to hide it in the gob, but concluded he would put some into an empty keg and got his partner to help him. They were in the act of pouring it into the empty one with their open lights on their heads when a spark from one of their lights fell on the powder and exploded it, burning them terribly, so that Stoka died next day in great agony. It was not expected that the other one would live, but he recovered. This explosion extended to where two other men were working and burned them also, but not very severely.

On July 22 James Muldowney was undermining his coal in room No. 4, 17 entry, Southwest No. 4 Ocean, when a piece of slate $2\frac{1}{2} \times 3\frac{1}{2} \times 1$ feet thick fell on him, life being extinct before any one discovered him. He had been complaining of being unwell, and told the driver he would go home if he did not feel better, so when the driver called him for his wagon and got no answer he concluded that he had gone home. It was on Saturday, and, strange to say, his uncle had a strong desire to see him, although working in a different part of the mine and out of his way entirely, he could not refrain from going to see his nephew, and to his horror he was the first to discover him under the slate, although there were others working in the next place to him and had called to him about one hour before. The young man was considered a very careful miner and had worked from boyhood in this vein of coal. He was 21 years of age and single.

On February 27 at Adelaide mine Joseph Brukoski, a Slav, 35 years of age, was killed in his room under the following circumstances: He had drawn out his posts for the purpose of making a fall and went back under the coal and was found after some difficulty, and if the rock had fallen at the time, he might never have been found, because no one would have known anything about him.

At Ocean No. 1 mine John Somsee, Hungarian, miner, was injured by slate falling on him in his room, No. 31, 14 butt entry, on September 4, and died the same night. He was working in a double header room along with another man; they had a piece of slate up about 10 feet long 4 feet wide, with two posts under the outer edge of it, and thought they had it supported well enough and kept working under it with the above results.

At Smithton No. 1 mine on the evening of September 21, Charles Weaver, a German, was coming out after his day's work, and in going down the incline inside the mine he stood aside to let the empty trip pass by and then stepped on to the full track again and it is supposed that he forgot about the loaded trip until it ran into him, knocking him to one side and throwing the first and second wagons off the track, which passed over his legs and crushed him so that he died the same night. He had only worked in the mine three days.

John Brizee, an Italian, was killed by a fall of coal in No. 41 room, No. 5 entry, Darr mine. He had fired a shot in the fast side of his room, the coal being 8 feet high, and had undermined about 7 feet. The shot not bringing down the coal, he commenced to cut up the other side; it then was hanging in a very dangerous condition. His partner cautioned him but he kept on working until it fell, killing him almost instantly.

At the Banning mine on December 23, Alexander Brownfield, 22 years of age was fatally injured by a piece of slate falling on him. He knew it was dangerous and tried to take it down a short time before, but concluded it was safe enough for some time yet, as he had two posts under it and besides it being a narrow entry. He wanted to dig enough coal to finish his last wagon, which needed only about six bushels at the time, but small as it was, he must have released a slip, because it fell without any warning, injuring him so severely that he died the second day after.

Joe Harrison, laborer at tipple, Darr mine, was standing in front of a railroad car talking to some person on a train that had stopped there when one of the other employes was bringing another empty car which bumped it so hard that it knocked him down and passed over his head, killing him instantly. He was 22 years of age and single.

The Cottage State Hospital, Connellsville.

Has completed the third year of its existence and has earned for itself as good a record as any institution of its kind in this country. Since having been placed under the very efficient management of Miss Ferguson it has commanded the highest praise.

The following is the report of the three years past, completed to January 27, 1893:

Number of patients treated, ...	343
Number of patients first year, ...	96
Number of patients second year, ...	117
Number of patients third year, ...	130
Of the 130 treated there were	
Discharged cured, ...	97
Discharged improved, ...	6
Discharged unimproved, ...	3
Remaining, ...	12
Died, ...	12
Number injured in the mines, ...	4
Miners, but injured outside the mines, ...	3
Railroad men, ...	3
Laborers, ...	2
Number of miners injured while employed, ...	47
Number of persons injured on railroads, ...	14
Number of miners injured while not at work, ...	17
Other occupations, ...	51
Unknown, ...	1

Some improvements were made last year, such as painting and putting some additions in operating room. Others are contemplated for this or next year if the state of the finances will permit them, such as a laundry and summer parlor for patients.

TABLE NO. 1.—Showing location etc., of collieries in the Ninth Bituminous Mine District.

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Postoffice Address.
Adelaide.	H. C. Frick Coke Company.	Fayette.	R. O. Thomas.	Broad Ford, Fayette county.
Anyville.	Anyville Youghiogheny Gas Coal Company.	Westmoreland.	John W. Peters.	Suterville, Westmoreland county.
Boston No. 1.	W. H. Brown's Sons.	Allegheny.	James A. Dewar.	Boston, Allegheny county.
Boston No. 2.	do.	do.	do.	do.
B. and O.	Clair Stillwagon.	Fayette.	Clair Stillwagon.	Connellsville, Fayette county.
Banning.	Morgan, Moore & Bane Company.	do.	J. Baysinger.	West Newton, Westmoreland co.
Beaumont.	Bell Bridge Coal Company.	Allegheny.	W. M. Fellaporn.	Bell Bridge, Allegheny county.
Birch.	John Blyth & Co.	Westmoreland.	John Blyth.	West Newton, Westmoreland co.
Buckeye.	McClure Coke Company.	do.	James Humphry.	Stauffers, Westmoreland county.
Bessemer.	do.	do.	James Devlin.	Mount Pleasant, Westmoreland co.
Coal Brook.	do.	Fayette.	John P. Munson.	Scottdale, Westmoreland county.
Davidson shaft.	H. C. Frick Coke Company.	do.	John P. Munson.	Connellsville, Fayette county.
Dexter.	Joseph R. Stauffer & Co.	do.	S. R. Fairchild.	Scottdale, Fayette county.
Donnelly.	McClure Coke Company.	Scottdale, Fayette.	N. A. Kerr.	Scottdale, Westmoreland county.
Donnelly.	Osborne, Saeger & Co.	Westmoreland.	A. W. Osborn.	West Newton, Westmoreland co.
Dart.	Wm. P. Dillworth & Co.	do.	Thomas Whiteman.	Frank, Allegheny coal company.
Dillworth.	Lake Shore Gas Coal Company.	Allegheny.	C. H. Wisser.	Robbins, Westmoreland county.
Dravo.	Eureka Coal Company.	do.	William McClure.	West Newton, Westmoreland co.
Eureka.	J. W. Overholt & Co.	Westmoreland.	J. W. Overholt.	Scottdale, Westmoreland county.
Enma.	Ohio and Pennsylvania Coal Company.	do.	James A. Watkins.	Fitz Henry, Westmoreland county.
Eucled.	McClure Coke Company.	do.	J. P. Brennan.	Scottdale, Westmoreland county.
Enterprise.	do.	do.	do.	do.
Fountain.	B. F. Keister & Co.	Summit Mines Fayette.	B. F. Keister.	Summit Mines, Fayette county.
Franklin.	W. J. Rainey.	Fayette.	Thomas J. Mitchell.	Vanderbilt, Fayette county.
Fort Hill.	James W. Ellsworth.	Allegheny.	John Simpson.	Suterville, Westmoreland county.
Forrest Hill.	William J. Rainey.	Fayette.	Thomas Johns.	Moyer, Fayette county.
Grace.	Youghiogheny River Coal Company.	Westmoreland.	John F. Hosack.	Scott Haven, Westmoreland co.
Grady.	McClure Coke Company.	do.	William Murray.	Stauffer, Westmoreland county.
Hazel.	H. C. Frick Coke Company.	Fayette.	C. J. Warnock.	Summit Mines, Fayette county.
Henry Clay.	do.	do.	do.	do.
Homer & Roberts.	do.	do.	do.	do.
H. D. O'Neil.	H. D. O'Neil.	Allegheny.	H. D. O'Neil.	Elizabeth, Allegheny county.
Jackson.	Jackson Mines Company.	Fayette.	P. G. Cochran.	Dawson, Fayette county.
Lovedale.	John A. Wood & Son.	Allegheny.	George R. Gray.	Elizabeth, Allegheny county.
Moreland slope.	do.	do.	do.	do.
Mullen.	McClure Coke Company.	Westmoreland.	William Murray.	Stauffer, Westmoreland county.
Mayfield.	do.	do.	J. P. Brennan.	Scott Haven, Westmoreland co.
Ocean No. 1.	Youghiogheny River Coal Company.	do.	John F. Hosack.	Scott Haven, Westmoreland co.
Ocean No. 2.	do.	Allegheny.	do.	do.
Ocean No. 3.	do.	do.	do.	do.
Ocean No. 4.	do.	do.	do.	do.
Ocean No. 5.	do.	do.	do.	do.
Ocean No. 6.	do.	do.	do.	do.
Ocean No. 7.	do.	do.	do.	do.
Ocean No. 8.	do.	do.	do.	do.
Ocean No. 9.	do.	do.	do.	do.
Ocean No. 10.	do.	do.	do.	do.
Ocean No. 11.	do.	do.	do.	do.
Ocean No. 12.	do.	do.	do.	do.
Ocean No. 13.	do.	do.	do.	do.
Ocean No. 14.	do.	do.	do.	do.
Ocean No. 15.	do.	do.	do.	do.
Ocean No. 16.	do.	do.	do.	do.
Ocean No. 17.	do.	do.	do.	do.
Ocean No. 18.	do.	do.	do.	do.
Ocean No. 19.	do.	do.	do.	do.
Ocean No. 20.	do.	do.	do.	do.
Ocean No. 21.	do.	do.	do.	do.
Ocean No. 22.	do.	do.	do.	do.
Ocean No. 23.	do.	do.	do.	do.
Ocean No. 24.	do.	do.	do.	do.
Ocean No. 25.	do.	do.	do.	do.
Ocean No. 26.	do.	do.	do.	do.
Ocean No. 27.	do.	do.	do.	do.
Ocean No. 28.	do.	do.	do.	do.
Ocean No. 29.	do.	do.	do.	do.
Ocean No. 30.	do.	do.	do.	do.
Ocean No. 31.	do.	do.	do.	do.
Ocean No. 32.	do.	do.	do.	do.
Ocean No. 33.	do.	do.	do.	do.
Ocean No. 34.	do.	do.	do.	do.
Ocean No. 35.	do.	do.	do.	do.
Ocean No. 36.	do.	do.	do.	do.
Ocean No. 37.	do.	do.	do.	do.
Ocean No. 38.	do.	do.	do.	do.
Ocean No. 39.	do.	do.	do.	do.
Ocean No. 40.	do.	do.	do.	do.
Ocean No. 41.	do.	do.	do.	do.
Ocean No. 42.	do.	do.	do.	do.
Ocean No. 43.	do.	do.	do.	do.
Ocean No. 44.	do.	do.	do.	do.
Ocean No. 45.	do.	do.	do.	do.
Ocean No. 46.	do.	do.	do.	do.
Ocean No. 47.	do.	do.	do.	do.
Ocean No. 48.	do.	do.	do.	do.
Ocean No. 49.	do.	do.	do.	do.
Ocean No. 50.	do.	do.	do.	do.
Ocean No. 51.	do.	do.	do.	do.
Ocean No. 52.	do.	do.	do.	do.
Ocean No. 53.	do.	do.	do.	do.
Ocean No. 54.	do.	do.	do.	do.
Ocean No. 55.	do.	do.	do.	do.
Ocean No. 56.	do.	do.	do.	do.
Ocean No. 57.	do.	do.	do.	do.
Ocean No. 58.	do.	do.	do.	do.
Ocean No. 59.	do.	do.	do.	do.
Ocean No. 60.	do.	do.	do.	do.
Ocean No. 61.	do.	do.	do.	do.
Ocean No. 62.	do.	do.	do.	do.
Ocean No. 63.	do.	do.	do.	do.
Ocean No. 64.	do.	do.	do.	do.
Ocean No. 65.	do.	do.	do.	do.
Ocean No. 66.	do.	do.	do.	do.
Ocean No. 67.	do.	do.	do.	do.
Ocean No. 68.	do.	do.	do.	do.
Ocean No. 69.	do.	do.	do.	do.
Ocean No. 70.	do.	do.	do.	do.
Ocean No. 71.	do.	do.	do.	do.
Ocean No. 72.	do.	do.	do.	do.
Ocean No. 73.	do.	do.	do.	do.
Ocean No. 74.	do.	do.	do.	do.
Ocean No. 75.	do.	do.	do.	do.
Ocean No. 76.	do.	do.	do.	do.
Ocean No. 77.	do.	do.	do.	do.
Ocean No. 78.	do.	do.	do.	do.
Ocean No. 79.	do.	do.	do.	do.
Ocean No. 80.	do.	do.	do.	do.
Ocean No. 81.	do.	do.	do.	do.
Ocean No. 82.	do.	do.	do.	do.
Ocean No. 83.	do.	do.	do.	do.
Ocean No. 84.	do.	do.	do.	do.
Ocean No. 85.	do.	do.	do.	do.
Ocean No. 86.	do.	do.	do.	do.
Ocean No. 87.	do.	do.	do.	do.
Ocean No. 88.	do.	do.	do.	do.
Ocean No. 89.	do.	do.	do.	do.
Ocean No. 90.	do.	do.	do.	do.
Ocean No. 91.	do.	do.	do.	do.
Ocean No. 92.	do.	do.	do.	do.
Ocean No. 93.	do.	do.	do.	do.
Ocean No. 94.	do.	do.	do.	do.
Ocean No. 95.	do.	do.	do.	do.
Ocean No. 96.	do.	do.	do.	do.
Ocean No. 97.	do.	do.	do.	do.
Ocean No. 98.	do.	do.	do.	do.
Ocean No. 99.	do.	do.	do.	do.
Ocean No. 100.	do.	do.	do.	do.

TABLE No. 1—Continued.

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Postoffice Address.
Rainbow, ...	Rainbow Coal Company, ...	Fayette, ...	A. W. Osbourne, ...	West Newton, Westmoreland co.
Rist, ...	H. C. Frick Company, ...	do.	C. J. Warnock, ...	Summit Mines, Fayette county.
Rising Sun, ...	McClure Coke Company, ...	Westmoreland, ...	James Devlin, ...	Mount Pleasant, Westmoreland co.
Rolling Mill, ...	Scottdale Iron and Steel Company, ...	do.	A. S. Lintgood, ...	Everson, Fayette county.
Southwest, ...	Youghiogheny River Coal Company, ...	Allegheny, ...	John F. Ittsack, ...	Scott Haven, Westmoreland co.
Sarah, ...	Douglas Coal Company, ...	do.	Edward Bell, ...	Blythedale, Allegheny county.
Shaners No. 2, ...	Criterion Coal Company, ...	Westmoreland, ...	Reuben Street, ...	Youghiogheny, Westmoreland co.
Smithton No. 1, ...	Waverly Coal and Coke Company, ...	do.	David Orr, ...	Smithton, Westmoreland county.
Smithton No. 2, ...	do.	do.	do.	do.
Sterling No. 1, ...	H. C. Frick Coke Company, ...	Fayette, ...	George Rosser, ...	Dawson, Fayette county.
Sterling No. 2, ...	do.	do.	do.	do.
Summit, ...	do.	do.	C. J. Warnock, ...	Summit Mines, Fayette county.
Tipton, ...	do.	do.	James Lynch, ...	Valley Mines, Fayette county.
Tryone, ...	Langhams & Co., Limited, ...	do.	Clifton Wharton, ...	Ipsalford, Fayette county.
Valley, ...	H. C. Frick Coke Company, ...	do.	James Lynch, ...	Scottdale, Westmoreland county.
White, ...	do.	do.	C. J. Warnock, ...	Summit Mines, Fayette county.
Wick Haven, ...	Youghiogheny Mining Company, ...	do.	Frank Morrison, ...	Panning, Fayette county.
West Overton, ...	A. C. Overholt, ...	do.	Frank Overholt, ...	West Overton, Westmoreland co.
West Newton, ...	Osborne, Sager & Co., ...	Westmoreland, ...	W. H. Allison, ...	West Newton, Westmoreland co.
Yough slope, ...	Yough Slope Gas Coal Company, ...	do.	R. H. Latimore, ...	do.

TABLE NO. 2.—Gives the total number of tons of coal mined and tons of coke produced in each colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, &c., in the Ninth Bituminous District for the year ending December 31, 1893.

Names and Location of Collieries.	Ninth Bituminous District.									
	Total production in tons of coal.	Total production in tons of coke	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used	Number steam boilers.	Number horses and mules.
Adelaide, Fayette county	227,980	151,987	..	263	337	1	1	..	4	12
Amyville, Westmoreland county	46,979	..	46,979	144	123	..	..	..	..	..
Boston No. 1, Allegheny county	99,511	..	99,511	137	295	..	2	100	6	14
Boston No. 2, Allegheny county	39,902	..	39,902	75	256	..	1	60	3	10
B. & O., Fayette county	43,310	..	43,310	364	24	..	..	..	..	..
Banning, Fayette county	199,484	..	199,484	218	235	..	1	..	..	..
Bell Bridge, Allegheny county	29,730	..	29,730	72	147	..	..	..	..	..
Big Chief, Westmoreland county	108,802	..	108,802	223	162	..	..	..	..	..
Buckeye, Westmoreland county	65,000	43,000	..	235	100	..	..	..	..	..
Davidson shaft, Fayette county	108,354	..	113,373	244	207	..	..	10	6	12
Dexter, Fayette county	9,265	7,002	..	139	55	..	..	..	..	..
Donnelly, Westmoreland county	60,500	40,200	..	175	133	..	..	1,000	4	6
Durr, Westmoreland county	233,882	..	233,882	270	285	1	6	..	..	..
Dillworth, Westmoreland county	41,740	..	41,740	208	78	..	..	..	..	..
Dravo, Allegheny county	46,861	..	46,861	203	125	..	2	700	2	10
Enterprise, Westmoreland county	109,128	..	100,000	240	132	..	..	..	..	..
Eureka, Westmoreland county	48,693	9,049	..	215	99	..	..	350	3	2
Eucleda, Westmoreland county	5,512	..	44,625	245	99	..	..	..	..	..
Enterprise, Westmoreland county	11,500	7,730	..	101	42	..	..	70	..	..
Franklin, Fayette county	16,810	12,250	..	174	34	..	..	..	..	..
Fort Hill, Fayette county	158,400	99,000	..	175	174	1	1	475	4	6
Forrest Hill, Allegheny county	108,000	..	107,212	200	112	..	7	300	8	7
Grace, Fayette county	151,200	100,800	..	230	343	..	..	..	..	..
Guffey, Westmoreland county	141,899 1/2	..	141,899 1/2	240	196	..	..	75	1	13

Names and Location of Collieries.

Number coke ovens.

Number mine locomotives.

Number horses and mules.

Number steam boilers.

Number kegs powder used

Number non-fatal accidents.

Number fatal accidents.

Number persons employed.

Number days worked.

Total shipment in tons of coal.

Total production in tons of coke

Total production in tons of coal.

TABLE No. 2—Continued.

Names and Location of Collieries.	Total production in tons of coal.	Total production in tons of coke.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.	Number mine locomotives.	Number coke ovens.
Hazlet No. 1 and No. 2, Westmoreland county.	30,600	20,000	..	147	81	..	..	..	6	10	1	261
Henry Clay, Fayette county.	47,769	65,179	..	263	165	..	..	..	12	12	..	120
Horne & Roberts, Allegheny county, *	52,685	..	62,555	30	169	..	..	50	..	..	1	..
H. D. O'Neil, Allegheny county.	53,890	..	53,890	178	107	..	..	..	6	6	..	..
Jackson, Fayette county.	24,925	17,744	..	192	51	..	..	..	13	4	..	58
Lovedale, Allegheny county.	13,877	..	1,292	64	76	..	..	31	2	..	..	..
Mullen, Westmoreland county.	19,200	..	..	150	71	..	..	..	9	9	..	82
Mayfield, Westmoreland county.	20,600	13,500	..	146	46	..	..	..	2	..	..	104
Ocean No. 1, Westmoreland county.	135,015	..	135,015	85	202	1	..	16	..	4	..	29
Ocean No. 2, Allegheny county.	252,205	..	252,205	237	401	1	..	150	80	17	..	..
Ocean No. 3, Allegheny county.	32,673	..	32,673	209	164	1	..	..	23	23	..	..
Ocean No. 4, Allegheny county.	151,115	..	151,115	249	228	..	..	..	2	17	..	..
Ocean No. 5, Allegheny county.	81,729	..	81,729	160	135	1	..	400	2	10	..	..
Oscicola, Allegheny county.	144,558	..	144,558	264	216	..	1	100	2	30	..	..
Pacific, Allegheny county.	31,764	..	31,764	175	113	..	..	275	..	15	..	..
Painter & Cornells, Allegheny county.	19,944	1,033	..	53	124	1	..	..	..	3	..	80
Port Royal No. 1 and 2, Westmoreland county.	61,706	..	41,234	158	87	1	..	..	..	14	..	..
Plumer, Fayette county.	40,235	..	30,585	32	92	..	1	300	2	6	..	92
Pennsylvania, Fayette county.	115,000	76,000	..	262	170	..	..	..	3	3	1	238
Rainbow, Fayette county.	102,773	..	102,773	220	115	..	..	..	4	4	..	..
Rust, Fayette county.	131,696	98,451	..	251	180	1	9	..	2	11	..	307
Saugan, Westmoreland county.	61,000	40,000	..	230	79	..	..	..	4	4	..	273
Scott, Allegheny county.	23,286	..	96,206	4	..	..	..	..	..	..	..	..
Scottdale Iron and Steel company, Fayette county.	23,286	..	23,286	282	27	..	..	10	..	..	..	..
Shaners No. 2, Westmoreland county.	63,223	..	63,223	165	201	..	..	..	2	12	..	..
Smithson No. 1, Westmoreland county.	85,690	..	85,690	65	193	1	..	250	..	10	..	117
Smithson No. 2, Westmoreland county.	24,800	..	24,800	205	99	..	..	152	2	2	..	..
Sterling No. 2, Fayette county.	56,813	37,875	..	130	129	..	..	..	3	5	..	294
Summit No. 2, Fayette county.	84,269	56,169	..	228	161	..	..	..	1	6	..	222

Southwest, Allegheny county, ...	23,658½		23,593½	79	71			50	1	11		
Lyron, Fayette county, ...	112,400			308	92			300	2	6		
Union, Westmoreland county, ...	15,233			150	84					3		
Yadley, Fayette county, ...	172,061			259	254					13		
West, Otter, Westmoreland county, ...	76,600			283	86					6		
West, Newton, Westmoreland county, ...	121,800			161	264					8		
Yough slope, Westmoreland county, ...	60,580			205	114					2		
Total, ...	4,814,178	1,240,163½	2,970,683½	11,189	8,734	15	85	5,354	114	487	5	4,921

*Estimated

TABLE NO. 3.—*Showing the number of each class of employes at each colliery in the Ninth Bituminous Mine District during the year 1893.*

Names and Location of Collieries	Number of Persons Employed Inside.						Number of Persons Employed Outside.								
	Inside foreman or mine boss.	Miners.	Miners' boys.	All company men.	Drivers and runners.	Doorboys and helpers.	Total inside.	Outside foreman.	Blacksmiths and carpenters.	Engineers and firemen.	Cokers and yardmen.	All company men.	Superintendents, bookkeepers and clerks.	Total outside.	Grand total—inside and outside.
Adelaide, Fayette county, ...	1	145	10	17	15	5	192	1	4	5	106	26	2	144	337
Anyville, Westmoreland county, ...	1	100	6	2	6	6	115	1	1	3	5	5	8	123	223
Boston No. 1, Allegheny county, ...	1	225	25	4	13	1	269	1	3	3	3	17	3	26	295
Boston No. 2, Allegheny county, ...	1	200	20	4	11	1	236	1	3	4	11	11	2	20	256
B. and O., Fayette county, ...	1	15	1	2	1	1	20	1	2	1	1	1	1	4	34
Banning, Fayette county, ...	1	200	1	6	10	2	219	1	2	3	1	9	2	17	236
Bell Bridge, Allegheny county, ...	1	130	1	1	9	1	132	1	1	1	1	10	1	13	147
Big Chief, Westmoreland county, ...	1	130	10	4	5	1	151	1	1	1	30	6	1	162	281
Blackeye, Westmoreland county, ...	1	45	6	4	6	2	58	1	2	2	1	5	4	100	145
Davidson shaft, Fayette county, ...	1	75	6	12	10	1	105	1	6	9	76	6	1	102	207
Dexter, Fayette county, ...	1	20	2	5	2	2	29	1	2	3	40	8	2	55	75
Dunnely Westmoreland county, ...	1	60	2	5	9	2	77	1	3	4	3	9	1	32	92
Durr, Westmoreland county, ...	1	250	1	3	9	2	265	1	3	4	1	5	1	10	266
Dillworth, Westmoreland county, ...	1	58	5	2	4	2	71	1	1	1	1	3	1	7	78
Dravo, Allegheny county, ...	1	108	1	3	5	2	118	1	1	1	1	9	1	125	233
Eureka, Westmoreland county, ...	1	115	8	4	9	1	138	1	1	1	14	3	1	152	267
Emma, Westmoreland county, ...	1	10	1	1	1	1	14	1	1	1	1	6	1	16	30
Euclid, Westmoreland county, ...	1	75	3	1	4	2	86	1	1	3	13	2	1	13	99
Enterprise, Westmoreland county, ...	1	18	1	1	4	1	24	1	1	1	1	2	1	18	42
Franklin, Fayette county, ...	1	15	1	3	4	2	19	1	2	3	11	15	1	15	34
Fort Hill, Fayette county, ...	1	150	3	4	12	2	172	1	2	3	144	10	1	165	335
Forrest Hill, Allegheny county, ...	1	140	3	4	6	2	156	1	2	3	13	3	1	163	313
Grace, Fayette county, ...	1	138	8	5	12	2	166	1	4	4	151	3	1	170	318
Gaffney, Westmoreland county, ...	1	158	9	5	12	2	186	1	2	2	20	8	1	196	354
Hazlet No. 1 and 2, Westmoreland county, ...	1	35	4	9	3	1	48	1	2	3	1	7	1	81	116
Henry Clay, Fayette county, ...	1	68	4	4	10	2	75	1	1	1	82	9	2	90	158
Horner & Roberts, Allegheny county, ...	1	140	4	1	8	1	155	1	2	1	1	9	1	169	309
H. D. O'Neil, Allegheny county, ...	1	86	1	5	4	1	97	1	1	2	13	6	1	107	193
Jackson, Fayette county, ...	1	23	1	3	3	1	32	1	1	1	1	4	1	19	51
Lovedale, Allegheny county, ...	1	55	1	3	3	5	64	1	1	2	1	6	1	12	76
Mullen, Westmoreland county, ...	1	29	5	8	4	4	47	1	1	1	16	2	1	24	71
Mayfield, Westmoreland county, ...	1	18	2	2	3	1	27	1	1	1	15	2	1	19	46
Ocean No. 1, Westmoreland county, ...	1	180	12	5	10	2	190	1	3	1	1	2	1	19	202

Ocean No. 2, Allegheny county, ...	1	338	23	7	15	2	586	...	3	2	...	9	1	15	401
Ocean No. 4, Allegheny county, ...	1	125	12	4	11	1	155	...	1	1	...	7	...	9	164
Ocean No. 5, Allegheny county, ...	1	190	12	4	11	1	219	...	1	...	...	7	...	9	228
Osceola, Allegheny county, ...	1	110	1	1	7	...	120	1	1	...	...	7	1	13	233
Pacific, Allegheny county, ...	1	165	14	12	12	2	306	...	2	...	...	6	...	10	213
Painter & Cornell, Allegheny county, ...	1	87	11	2	2	...	103	...	1	...	...	6	...	10	113
Port Royal, Westmoreland county, ...	1	45	17	6	4	...	163	1	2	...	...	12	2	21	121
Plumer, Fayette county, ...	1	42	10	1	6	1	63	...	...	3	20	2	...	24	87
Pennsville, Fayette county, ...	1	31	...	...	5	...	41	...	...	3	44	...	...	51	92
Painters, Fayette county, ...	1	85	...	8	10	1	105	1	2	1	49	10	2	65	170
Rainbow, Fayette county, ...	1	88	...	5	7	2	103	1	1	3	45	6	2	12	115
Rockwell, Allegheny county, ...	1	97	9	4	13	1	125	1	1	3	...	4	2	55	180
Rockwell, Allegheny county, ...	1	33	...	4	2	4	46	1	1	1	24	4	2	33	79
Scotchdale, Allegheny county, ...	1	40	4	2	2	...	45	...	1	...	...	2	1	4	49
Shaner's No. 2, Westmoreland county, ...	1	17	1	2	2	...	23	...	1	...	...	2	...	4	27
Scotchdale Iron and Steel Company, Westmoreland co., ...	1	175	2	2	8	3	191	...	2	2	...	6	...	10	201
Smithton No. 1, Westmoreland county, ...	1	150	3	8	14	4	180	1	2	2	...	6	2	13	133
Smithton No. 2, Westmoreland county, ...	1	74	1	7	5	1	89	...	2	2	...	4	2	10	99
Sterling No. 2, Fayette county, ...	1	49	...	4	7	2	63	1	1	3	50	7	4	66	129
Southwest, Allegheny county, ...	1	74	...	3	10	...	90	...	1	...	...	9	1	71	161
Summit No. 2, Fayette county, ...	1	53	5	2	3	...	64	...	2	2	...	4	...	7	71
Tyrone, Fayette county, ...	1	42	4	6	5	2	60	1	2	2	22	4	...	32	32
Union, Westmoreland county, ...	1	17	...	1	12	...	21	1	...	...	9	2	1	13	34
Valley, Fayette county, ...	1	100	...	7	...	7	129	1	2	...	98	20	2	123	284
West Newton, Westmoreland county, ...	1	37	...	2	5	...	45	1	2	...	35	...	...	11	186
West Newton, Westmoreland county, ...	1	230	...	1	8	...	244	1	2	7	...	2	...	20	964
Young Slope, Westmoreland county, ...	1	85	7	3	4	1	102	1	1	4	...	4	2	12	114
Total, ...	60	5,719	289	250	422	77	6,817	40	95	108	1,215	384	95	1,937	8,754

TABLE NO. 4 — *List of fatal accidents which occurred in and about the mines of the Ninth Bituminous Mine District for the year 1893.*

Date of accident.	Name of Person.	Occupation.	Age.	Widow.	Number of orphans.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Feb. 1.	John A. Gittens, . . .	Assistant mine boss, . .	37	..	6	Port Royal, ...	Westmoreland,	In going into the mine for the purpose of searching for a leak in the air-pipe line, not knowing there was a fire in some part of the mine, he ventured too far in-ward and was suffocated by smoke; his body was not recovered for nine months after.
19,	Desert Demolin, . . .	Miner, ...	21	S.	..	Shaners No. 2, ...	do.	Was killed by slate, not having a sufficient number of posts under it.
27,	Joseph Brutoska, . .	do.	35	S.	..	Adelaide, ...	Fayette,	Instantly killed by a fall of top rock, caused by his having taken down all the posts and in going under it when he had no more business there.
March 24,	Luther Leppold, . . .	Cager, ...	22	S.	..	West Newton shaft, . . .	Westmoreland,	While a loaded trip was coming into the bottom of shaft it caught him between trip and side of the rib, crushing him to death.
27,	F. C. Vatch, ...	Miner, ...	56	M.	6	Ocean No. 2, ...	Allegheny,	Was loading his car, standing under a piece of loose slate, which was unsupported, which fell, instantly killing him; it was evident he did not realize his danger or he would not have taken such a risk.
May 3,	Frank Crain, ...	do.	35	M.	4	Dart mine, ...	Westmoreland,	After firing a shot in the coal he commenced to work under it without posting it, when it fell, killing him.
12,	John Haley, ...	do.	38	M.	4	Rist mine, ...	Fayette,	This man was working on a rib, and, when drawing out his post, the top rock came down on him, killing him instantly.
June 1,	William Eppley, . . .	do.	18	..	..	Emblem mine, ...	Allegheny,	This young man kept working under slate without posting it sufficiently, when it came down on him and killed him.
28,	George Stooka, ...	do.	30	..	..	Forrest Hill mine, ...	do.	This man, along with his partner, was pouring powder from one keg into another with their lamps burning on their caps, when a spark from one of them fell into the powder and exploded it.

July 22,	James Muldowny, . . .	do.		21			Youghiogheny Coal Co., . .	do.		While working under slate without posting it it fell on him, killing him instantly.
Sept. 4,	John Somsee, ...	do.		34	W.		Ocean No. 1, ...	Westmoreland.		Was fatally injured by a piece of slate falling on him while digging down some coal.
21,	Charles Weaver, . . .	do.		24	S.		Smithton No. 1, ...	do.		In going home after the day's work was through, he, along with two others, all being strangers in this mine, traveled on the incline plane inside; a trip passed witnessed by three other men, and as they descended they did not think of the danger of the trip, and commenced to walk on the track; the trip ran on him and he died the same night.
Oct. 31,	Joe Brizzle, ...	do.		27	S.		Darr mine, ...	do.		This man was cutting up the side of a cut of coal that was short but had not fallen; it suddenly fell before he could get away from it and killed him.
Nov. 2,	Joe Harrison, ...	Laborer.		25	S.		Darr mine, ...	do.		While standing under the tippie against a car, another person let a car come against it with such force that it knocked him down in front of it and passed over his head and arm, killing him.
Dec. 23,	Alex Brownfield, . . .	Miner, ...		22	S.		Banning mine, ...	do.		Killed by a fall of slate while working under it, although he knew it was dangerous.

TABLE No. 5—List of non-fatal accidents which occurred in and about the mines of the Ninth Bituminous Mine District for the year 1893.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	No. of children.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 27, Mar. 3,	Joseph Pelgreno, ... Peter Thompson, ...	Miner, do.	25 27	S. M.	.. ..	Amyville, ... Darr, ...	Westmoreland, do.	Back severely injured by slate falling on him. Leg broken by slate falling on him.
3,	William Stych, ...	Driver, ...	20	M.	3	Ocean No. 2, ... Rainbow, ...	Allegheny, Fayette,	Arm broken by falling from his loaded trip.
12,	William Duncan, ...	Mine insp. F., ...	50	M.	..	do.	do.	Injured by gas explosion.
12,	Edward Harrington, ...	Laborer, ...	30	S.	3	do.	do.	Burned by explosion of gas.
12,	Josiah Rhodes, ...	Miner, ...	35	M.	4	do.	do.	Burned by explosion of gas.
12,	Oliver Branthoover, ...	Fire boss, ...	32	M.	4	do.	do.	Burned on face and hands by gas.
12,	William Goldsboro, ...	Miner, ...	44	M.	5	do.	do.	Arm cut off by slate falling on him in his room.
1,	Thomas Williams, ...	do.	22	S.	..	Osceola, ... Barr, ...	Westmoreland, Allegheny,	Collar bone broken by a fall of slate.
1,	George Pool, ...	do.	23	S.	..	do.	do.	Burned by powder and gas in his room.
14,	James Carahan, ...	do.	32	M.	6	West oreland, ... Barr, ...	West oreland, Allegheny,	Badly hurt by slate falling on him.
14,	Joseph Laughlin, ...	do.	40	M.	4	Allegheny, ... Barr, ...	Allegheny, Fayette,	Both legs broken by a fall of slate.
May 13, June 9,	John Packer, ... Alex. Donelson, ...	Driver, Miner,	24 30	M. M.	8 4	Mountain slope, Boston No. 1, ...	do.	Badly crushed by one of slate.
June 9, June 12,	William Madrizo, ... do.	do. do.	30 30	M. M.	4 4	Allegheny, Rainbow, ...	Allegheny, Fayette,	Hurt internally by slate falling on him.
29, 28,	A. C. Laszlo, ... George Balko, ...	Laborer, Miner,	30 30	M. M.	1 1	Ocean No. 5 mine, Forrest Hill mine, ...	do. do.	Arm badly bruised while coupling cars outside.
28,	William Dadds, ...	do.	25	S.	..	do.	do.	Badly burned by an explosion of powder.
28,	James Paul, ...	do.	25	S.	..	do.	do.	Slightly burned by an explosion of powder.
15,	George Shorne, ...	do.	23	S.	..	do.	do.	Arm broken by an empty wagon.
22, July 29,	George Balko, ... William Krom, ...	do. do.	27 34	S. M.	.. ..	do. Plummer, ...	do. Fayette,	Foot badly broken by slate falling on him. While drawing out his posts on rib the coal fell on his foot and crushed it badly.
29,	John Rankin, ...	do.	26	S.	..	B. & O., ...	do.	While helping a driver into his room with his empty wagon he was caught between wagon and rib and his arm was broken.
Aug. 2,	Frank Cako, ...	do.	38	M.	..	Rainbow, ...	do.	Face and hands slightly burned by a blown-out shot; he lighted the fuse and only went behind his loaded wagon; the shot blew out, and the flame reached him behind the wagon with above result.
12,	John Condren, ...	do.	36	S.	..	Darr, ...	Westmoreland,	This man was pulling down some coal; the slate came down with it and bruised his foot badly, and he was so badly hurt that he was unable to move.
Sept. 23,	J. F. Clemens, ...	do.	28	S.	..	do.	do.	While forcing his car a piece of coal fell on him, breaking his leg.

Oct. 21,	Robert Mills, ...	Miner, ...	25	S.	Rainbow, ...	Fayette, ...	Was putting a cartridge in a hole to shoot down the coal, and then put his head close to the hole, with the lighted lamp on his cap, and ignited the gas that was issuing from the hole, burning his face and hands.
21,	Joe Rachle, ...	do.	53		Darr mine, ...	Westmoreland, ...	Injured on this occasion.
Dec. 18,	John W. Bayley, ...	do.	20	S.	Eureka mine, ...	do.	Goed driver's trip to ride out, it being down grade; he fell off and was caught between wagon and rib; his back was broken.
18,	Jacob Worzel, ...	do.	35	M.	Darr mine, ...	do.	Was badly squeezed between wagon and rib, by jumping on moving trip.
18,	Joseph Foltover, ...	Laborer, ...	45	M.	do.	do.	Was burned by explosive gas; he passed a danager board and ignited the gas; injuries were slight.
20,	Richard Gender, ...	Miner, ...	28	M.	Eureka mine, ...	do.	Was taking down slate when it fell and rolled over, knocking the bench on which he stood from under him. Injuring his leg.
23,	John Shulick, ...	do.	33	M.	Darr mine, ...	do.	Foot badly bruised by piece of slate falling on it in his room.
24,	Edward Rollins, ...	Laborer, ...	16	S.	do.	do.	Leg broken by the haulage rope flying off the sheave wheel.



Tenth Bituminous District.

Huntingdon, Fulton, Bradford and Blair counties and those parts of Cambria, Clearfield and Indiana counties lying adjacent to the Bells Gap Railroad, and the parts of Clearfield, Centre and Clinton counties lying along the main line of the Beech Creek Railroad.

Hon. Thomas J. Stewart, Secretary of Internal Affairs:

Sir: Having been appointed by His Excellency Governor Robert E. Pattison Inspector of the Tenth Bituminous Mine district, and in compliance with section 11, article 10 of the Act relating to the bituminous coal mines of Pennsylvania, approved May 15, 1893, I have the honor to submit the annual report of the mines in this district for the year 1893.

The condition of trade in this district has been extremely poor during the year, and great hardship has existed among the miners. In the Broad Top region many of the mines were closed from April until October, and when they did resume work, the miners only worked part time. The accidents, both fatal and non-fatal, were few in number, and the mines, as a whole, were found to be in good condition. The following summary embraces the chief points of the report, and a description of the mines and condition of the same is embodied in the report, and the customary tables also follow.

Causes of Accidents in 1893.

	Fatal.	Non-fatal.
By falling slate, ...		2
By falling rock, ...	1	3
By falling coal, ...	2	17
By mine wagons, ...		7
By explosions of powder, ...		1
By cage in shaft, ...	1	
By falling down shaft, ...		1
Total, ...	4	31

Summary of Statistics for 1893, as Shown by the Returns to this Office.

Number of mines in the district, ...	68
Number of mines operated in 1893, ...	60
Number of tons of coal mined, ...	2,773,116
Number of tons of coal shipped, ...	2,452,484
Number of tons of coke produced, ...	224,181
Number of persons employed inside, ...	5,163
Number of persons employed outside, ...	534
Total number of employes, ...	5,697
Number of fatal accidents, ...	4
Number of non-fatal accidents, ...	31
Number of tons of coal produced for each fatal accident,...	693,279
Number of tons of coal produced for each non-fatal accident, ...	89,455
Number of kegs of powder used, ...	17,043
Number of days mines were in operation in 1893, ...	9,892
Average number of days worked for each mine,.....	164+

The above is respectfully submitted

R. HAMPSON,
Inspector.

Altoona, March 23, 1893.

DESCRIPTION OF MINES.

Mines Located in the Broad Top Region, in Bedford and Huntingdon Counties.

On Sandy Run there are Cambria 1 and 2, Chevington, Crescent and Cumberland mines. Cambria 1 and 2 have not worked during the past year. Crescent mine was visited twice and the ventilation was good in most of the work and the drainage was also good. Chevington mine, which is adjoining, was in good condition on my first visit, as only a few men were at work, but on my last visit it was not so good, owing to the fact that the mines were crowded, and connection was being rapidly made with an upper heading in the old workings that would materially benefit the ventilation. Cumberland mine, at my last visit was only working a few miners and was not in very good condition, owing to the fact that there had been a fall of roof in the return airway and it was not all cleaned up. The fan is amply sufficient to ventilate this mine, and the workings are well laid out and everything in good condition for a large production of coal.

On Long Run there are the Kearney mines, 1 and 2, and Langdon-dale shaft, or Cambria No. 3. On my first visit I found Kearney mine No. 1 in very poor condition as regards ventilation, while No. 2 was in fair condition. Soon after this they commenced work on the slope,

and the intention is to connect the new slope workings with No. 1 workings, and put in a fan to ventilate both mines, and by taking advantage of the natural current, very good results can be obtained. With exception of work in the new slope, no work has been done in these mines since August.

At Cambria No. 3 the ventilation, with one exception, was very good at each visit, as the current is made to sweep around the face of the works, and things are well looked after by the present mine foreman. They are making a large sump and putting in larger pipes leading to the pump, and in a short time will have their mine in very good condition. The adjoining mine, Cambria No. 2, at my first visit was working about 12 men, but the coal was so very low that work has now been abandoned on it and the miners put into No. 3.

On Six Mile Run there are the Elmira, New Hampshire, Cunard, Harvey Slope, Sweet's, Taits, Eichelberger and Mt. Equity mines, and of these I have visited Elmira, Harvey Slope and Mt. Equity, as the others have been idle on account of poor trade. Elmira is an old mine opened 20 years ago, so that we cannot expect much of a mine so old; consequently, on my visit I found it in a poor condition, owing to the fact that there was no return airway to one portion of the mine, but efforts are being made to connect the two portions and when this is done and an old opening cleaned out, it will give a sweeping current all around the mine; and as only 20 miners are employed, it will not be at all difficult to keep the mine in good sanitary condition.

Another old mine was being opened on the same level as this one, and also one up on the hillside at an elevation of about 100 feet. A new tibble is to be built and preparations are being made to increase the output of the mine. Harvey Slope is a new mine opened up during the past year, and an effort is being made to get to the bottom of the coal basin, but on account of working so little during the past year they have not yet managed to do so. The ventilation is very good in the mine, as is also the drainage. A great part of this mine lies very steep, some of the room pitching at an angle of 40 degrees, so that it makes the headings look very queer, compared with mines lying level.

Mt. Equity mine, on my first visit was in very good condition, as the air current was passing right along the face of the work on top of the ridge. On my second visit it was not so good, as the main heading was running across the pitch and endeavoring to get at the bottom of the basin, and until a connection is made with the workings on the ridge, it will still be very poor. I understand that a few days after my visit connection had been made as above mentioned, and this improved the dip workings very much. A plane 900 feet long is used for lowering the coal from the ridge to the lower level.

On Shoup's Run there are Hicks, Benedict, Huntingdon, Ocean 1 and 2 and Fishers, and these mines were visited once, as on my last visit the mines were idle, owing to a dispute as to the price for digging.

Hicks mine is a small one, fewer than 20 men being employed, and the condition of the mine was fair. Benedict mine employs between 20 and 30 miners, and here the ventilation was in fair condition; drainage not very good.

Ocean No. 1.—The mine in one part was in poor condition, as they had just completed a rock tunnel and were opening out the work and had not made proper connections with the old workings. The other part of the mine was in fair condition. No. 2 mine, in the older part, was in very good condition as regards ventilation, and only a few miners were at work in the upper part; the ventilation was not so good and instructions were given to stop one part until connections had been made with it. Huntingdon mine was in very poor condition in one part, and efforts were being made to drive an entry through into the upper part of the work, and the management was ordered to stop all miners in the rooms until the heading was cut through. Since that time connection has been made with another drift, and now the ventilation is much improved.

Eichelberger mine employs from 12 to 18 miners, and was found in a very fair condition. The mines above mentioned are all working in a very low coal, in most cases under three feet in height, and the headings are driven from 18 to 24 feet in width, so as to stow the rock which is blasted down to make height for the mules. The rooms are also driven very wide, as roof has to be blasted down so as to allow the mules to go in, so that these mines look more like stone quarries than coal mines, and it is a very difficult matter to ventilate them so as to comply with the mine law.

At East Broad Top are the extensive mines of the Rockhill Iron Company, and a great number of miners are employed, and a large tonnage is produced, but during the past year very little work has been done, as the furnaces of the company are out of blast.

Robertsdale mine is a very large one, and is ventilated by a fan and the air is well distributed around the face of the working places and the headings, and the mine is in very good condition.

Woodvale shaft, owned by this company, is also well ventilated and everything in good condition. A large lodgment for water has been made, and connection with No. 3 mine (Robertsdale) has also been made, and this serves as a traveling way for the miners.

Mines Along the Pennsylvania Railroad.

The mines along the Pennsylvania Railroad are Tipton, Porter Shaft, Bennington Slope, Lemon, East End, Glen White and Delaney. The

mines visited were Porter Shaft, East End, Glen White and Delaney, the other mines being idle. Porter Shaft employs about 60 miners, and the ventilation in one heading is very poor; the other was in fair condition, and connections were being made with another part of the work which would improve the condition very much. The mine was very much overcrowded; in some of the places three or four men were working, and this was owing to the fact that the mines had been shut down during the summer, and so many miners in the neighborhood were in need of work.

East End mine, on the west side, was in good condition, and there was air-current enough on the east side of the workings, but it was not carried up to the working faces in a proper manner.

Glen White mine was found in a very good condition on both visits, the air being carried around the face of the workings very nicely; the drainage also was good.

Delaney mine, in the older portion, was found in good condition, as the upper portion of the mine had been cut through into the old Baker drift. The new mine, on both visits, was found in good condition as regards drainage and ventilation. Both mines are ventilated by furnaces.

Mines Along the Pittsburgh and Northwestern Railroad.

The mines along this road are Loydsville, Max Fricks, Blands, Givins, Edorado, Mountindale, Coalport, Haggerty's and Irvona. The mines visited were Loydsville, Max Fricks, Blands and Mountindale; the rest were idle at the time of my visit.

Loydsville mine is a new mine, not many miners working, and not very much developed. There is no furnace in the mine yet and the ventilation was very poor at the head of the work. The roof of this mine is very poor and falls a great deal, making it very dangerous to work in, and a source of much trouble to the management.

Max Fricks mine is across on the opposite hill from the above mine, and here the ventilation was found in good condition. The workings to the rise strike a fault, and the dip workings are too steep to haul coal out of them with profit, so that unless the fault is cut through, the mine will not last very long unless a new opening is put in away to the dip.

Blands mine is a small affair and the coal is used to supply the engines on the railroad. The condition of the mine was fair and efforts are being made to cut into an old drift adjoining them, and as soon as this is done it will materially improve the condition of the mine.

Mountindale mine is not very large. Headings are driven single with an air course. The coal is used for coking, and the mine when examined was in reasonably good condition, and the drainage was all

right. The old mine is nearly worked out, only a few miners being at work drawing out the pillars.

Mines on the Glen Campbell Branch of the Pennsylvania Railroad.

On this branch there are Glenwood 1, 2 and 3, Rickerts and Urey 1 2 and 3, and the mines visited were Rickerts and Glenwood 1 and 3. The other mines were idle.

Rickerts mine will not last long, as the territory is limited. The mine is ventilated by furnace, and was found in very good condition.

Glenwood No. 1 is quite a large mine, and was found in excellent condition, both as regards ventilation and drainage.

Glenwood No. 3 is confined to pillar working, and is being robbed back; these mines worked very little during the past year, owing to the dullness in the coal trade.

Mines Along the Beech Creek Railroad.

The mines lying tributary to this road are Cato, Snow Shoe, Careytown, Kellys, Moyers, Peale, Winburne, Forest 1 and 2, Fishburnes, Lueder Slope, Kecks, Porter, O'Shanter Plane, O'Shanter 1 and 2, Bloomington, Keystone and Gazzam. Of these I visited all but the O'Shanter Plane, Keystone, Porters and Kecks, as they were idle whenever I was in the neighborhood.

Cato mine, at my first visit, was found in a good condition as regards both ventilation and drainage but on my second visit the mine was abandoned, owing to some legal difficulty.

Snow Shoe Nos. 1, 2 and 3 were found in good condition on my first visit, but on my second visit, at the head of the work in No. 1 mine the ventilation was not quite up to the standard.

In No. 2 mine they had met quite a dip that was giving them more or less trouble, and they were driving a heading from this dip diagonally across to the main heading, which, when completed, will relieve them very much. The ventilation in this and No 3 mine was all right.

Careytown mine is also operated by the same company, and there are only a small number of men at work, and the mine is in good condition.

Kelly's mine and Moyer's mine are small operations, with natural ventilation, and the condition of both was fair. They are working out crop coal that was left here years ago.

At Peale there are Grass Flat, Knox Run, Pleasant Hill and Moravian mines, operated by the Clearfield Bituminous Coal Corporation. Grass Flat is a very large mine, employing a large number of miners. A fine system of rope haulage is in use here and it works very satisfactorily. The condition of the mine was very good both as to ventilation and drainage, and everything is kept in good condition.

Knox Run mine is a comparatively new mine, but owing to a dip met with on the main heading, which caused them to turn to the left,

the development has not been as rapid as it otherwise would have been. Ventilation was good and a new opening, which was being put in at the face of the work, will improve it very greatly.

Pleasant Hill is also a new mine and is being opened so as to dispense with the use of doors at mouth of headings as overcasts, and regulators are being used. The condition of the mine was very good.

Moravian mine was found to be in good condition, both in ventilation and drainage.

Winburne mines did not work very steadily during the year. No. 1 mine is mostly confined to pillar work and a small piece of coal in which one heading is being driven following the outcrop, and it was found to be in good condition. No. 2 mine in which the greater number of men are employed, was found in only fair condition, as they are getting too far away from the furnace. A heading is being driven along the basin to the outcrop, and an opening will be made. It is the intention of the management to put in a steam pump, also a ventilating fan, at this point, and until this is done the condition of the mine cannot be improved.

Forest mine No. 1 was found in a fair condition when visited; one part of the mine was cut through a fault, and a small furnace has been built to ventilate that part until connections can be made with Forest No. 2.

Fishburne mine has worked very little during the past year. The mine was found in very good condition.

O'Shanter mine, at my first visit was found in good condition, but on my last visit the ventilation at the face of the work was very poor, owing to the check doors at mouth of rooms being torn off and cross-cuts in the rooms not cut at regular intervals. The superintendent promised that this condition of affairs should be remedied.

Bloomington No. 1, at my first visit, was nearly finished, the few miners employed working on pillars No. 2 and 3. It was in very poor condition, as the furnaces were not adequate for the work required of them. On my second visit the fan was in operation and the condition of No. 2 mine, with the exception of two headings, was very good, and steps were being taken to further improve the ventilation. No. 3 mine was in very good condition, and overcasts are being made which will materially improve the ventilation.

Gazzam mine was visited twice during the year. No. 1 mine is very extensive and the vein low. The condition of the mine on both occasions was good. A steam pump on the lower level of the mine, pumps the water up a shaft to the surface. No. 2 mine does not employ many miners, as the vein is very irregular. On my first visit the mine was in very good condition for ventilation. On my last visit at the face of one of the headings the ventilation was a little deficient; the rest of the mine was all right.

TABLE NO. 1.—*Showing location &c., of collieries in the Tenth Bituminous Mine District.*

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Postoffice Address.
Blands,	Fred. Bland,	Cambria,	Fred. Bland,	Figart, Cambria county.
Bloomington slope,	J. L. Mitchell & Co.,	Blair,	William Smith,	Gallitzin, Cambria county.
Brown Nos. 1, 2 and 3,	Bloomington Mining Company,	Clearfield,	John Dunsmore,	Glen Ritchey, Clearfield county.
Brown No. 2,	Sweet & Brown,	Bedford,	W. H. Sweet,	Saxton, Bedford county.
Benedict,	W. S. Reed,	Huntingdon,	Scott Reed,	Dudley, Huntingdon county.
Cato,	Cato Mining Company,	Centre,	D. A. Black,	Cato, Centre county.
Cambria 1, 2 and 3,	United Collieries Company,	Bedford,	James Denithorne,	Huntingdon, Pa.
Crescent,	Lambrith Mining Company,	do.	John Langdon,	Hopewell, Bedford county.
Chevington,	do.	do.	do.	do.
Cumberland,	do.	do.	do.	do.
Cunard,	R. B. Wighton & Co.,	do.	Charles Starford,	Six Mile Run, Bedford county.
Duval shaft,	do.	do.	do.	do.
Delaney,	Altoona Coal and Coke Company,	Blair,	John Monroe,	Delaney, Cambria county.
Dougherty,	Ritchland Coal Company,	do.	John H. Dougherty,	Phoenix Block, Altoona, Pa.
Eagle,	John Givin & Son,	Cambria,	Luther Givin,	Mountaindale, Cambria county.
Eldorado,	J. S. McCartney,	do.	J. S. McCartney,	do.
East End,	East End Coal Company,	Blair,	William Smith,	Gallitzin, Cambria county.
Fisher,	E. Eichelberger & Co.,	Huntingdon,	E. W. Eichelberger,	Saxton, Bedford county.
Forest 1 and 2,	Jones & Walton,	Clearfield,	John White,	Phillipsburg, Centre county.
Glen White,	Glen White Coal Company,	Blair,	Val Eichenlaub,	Glen White, Blair county.
Great Bend,	Great Bend Coal Company,	do.	John H. Bell,	Bellwood, Pa.
Glenwood Nos. 1, 2 and 3,	Clearwood Coal Company,	Indiana,	Arthur M. Riddle,	Glen Campbell, Indiana county.
Gazdar,	Clearfield Bituminous Coal Corporation,	Clearfield,	Robert Shillingford,	Peale, Clearfield county.
Grass slope,	do.	do.	do.	do.
Holts,	Lambrith Mining Company,	Bedford,	John Langdon,	Hopewell, Bedford county.
Horseshoe Nos. 1 and 2,	Altoona Coal and Coke Company,	Blair,	John Manroe,	Delaney, Cambria county.
Hicks,	Holt & Buck,	Centre,	John Morris,	Clarence, Centre county.
Huntingdon,	J. H. Hicks,	Huntingdon,	W. H. Hicks,	Coalmont, Huntingdon county.
Irona Nos. 1 and 2,	W. H. Sweet,	do.	John McNulty,	Dudley, Huntingdon county.
Kecks,	J. H. Kecks,	Clearfield,	J. S. Overley,	Coalport, Clearfield county.
Kearney,	Joseph E. Thopp,	Bedford,	T. A. Jones,	Woodland, Clearfield county.
Knox Run,	Clearfield Bituminous Coal Corporation,	Clearfield,	Robert Shillingford,	Kearney, Bedford county.
Keystone,	Hirsh & Reed,	do.	W. W. Reed,	Peale, Clearfield county.
Kellys,	Kelly Bros.,	Centre,	M. D. Kelly,	Houtzdale, Clearfield county.
Kyle,	R. C. Fishburn,	Clearfield,	J. C. Fishburn,	Snowshoe, Centre county.
Lander slope,	Lehigh Valley Coal Company,	Centre,	J. F. Marshall,	Stinson, Pa.
Lucas Hill,	A. B. & G. W. Lueder,	Clearfield,	W. W. Lueder,	Stinsons, Centre county.
Lemon,	J. L. Michel & Co.,	Blair,	William Smith,	Gallitzin, Cambria county.
Max Fick,	Max Fick,	Cambria,	Max Fick,	Figart, Cambria county.
Mountaindale,	Bear Ridge Coal and Coke Company,	do.	Robert Shillingford,	Mountaindale, Cambria county.
Mortivan,	Clearfield Bituminous Coal Corporation,	Clearfield,	William Lander,	Peale, Clearfield county.
Oakton,	Keable Mining Company,	Bedford,	Samuel Hagerty,	Riddlesburg, Bedford county.
Oakton No. 1,	Wm. Hagerty,	Clearfield,	do.	Coalport, Clearfield county.
O'Shanter Nos. 1 and 2,	W. H. Sweet,	Huntingdon,	W. H. Sweet,	Saxton, Bedford county.
O'Shanter plane,	Beech Creek Cannel Coal Company,	Clearfield,	W. H. McDowell,	O'Shanter, Clearfield county.
	do.	do.	W. H. Banett,	do.

Penn.	Reakirt Bros. & Co., ...	Indiana, ...	William Trevisick, ...	Glen Campbell, Indiana county.
Pleasant Hill, ...	Clearfield Bituminous Coal Corporation, ...	Clearfield, ...	Robert Shillingford, ...	Peale, Clearfield county.
Perks, ...	W. H. Perks, ...	do.	W. H. Perks, ...	Clearfield, Pa. Blair county.
Porter shaft, ...	W. H. Porter, ...	Blair, ...	W. H. Porter, ...	Holidayburg, Huntingdon county.
Robertsdale, ...	Rockhill Iron and Coal Company, ...	Huntingdon, ...	Peter Connor, ...	Robertsdale, Indiana county.
Somerville Nos. 1, 2 and 3, ...	Somerville & Buchanan, ...	Clearfield, ...	John Somerville, ...	Wintersburg, Clearfield county.
Snowshoe Nos. 1, 2 and 3, ...	Lehigh Valley Coal Company, ...	Centre, ...	Y. K. Myers, ...	Wintersburg, Centre county.
Tipton, ...	E. K. Myers, ...	Blair, ...	Y. K. Myers, ...	Snowshoe, Centre county.
Urey Nos. 1, 2 and 3, ...	Urey Ridge Coal Company, ...	Indiana, ...	James Passmore, ...	Tyrone, Pa.
Woodvale shaft, ...	Rockhill Iron and Coal Company, ...	Indiana, ...	Peter Connor, ...	Phillipsburg, Centre county.
New Hampshire, ...	do.	Huntingdon, ...	G. McIntyre, ...	Robertsdale, Huntingdon county.
Fairplay, ...	do.	Bedford, ...	do.	Six Mile Run, Bedford county.
		do.		do.

TABLE NO. 2.—Gives the total number of tons of coal mined and tons of coke produced in each colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, &c., in the Tenth Bituminous Mine District for the year ending December 31, 1893.

Names of Collieries—Location—County.	Tenth Bituminous Mine District									
	Total production in tons of coal.	Total production in tons of coke.	Total shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number steam boilers.	Number horses and mules.
Blands, Cambria, ...	14,350	..	14,350	275	13	..	..	100	..	2
Bennington slope, Blair, ...	285,712	..	284,300	201	492	..	..	1,833	..	..
Bloomington Nos. 1, 2 and 3, Clearfield, ...	48,300	..	48,250	110	103	1	1	80	..	13
Brown No. 2, Bedford, ...	24,000	..	24,000	220	40	..	..	200	..	..
Benedict, Huntingdon, ...	20,000	..	20,000	230	20	..	..	300	..	..
Cato, Centre, ...	105,950	..	105,950	230	190	..	1	600	4	13
Cambria Nos. 1, 2 and 3, Bedford, ...	105,950	..	105,950	249	175	..	..	350	2	13
Crescent, Bedford, ...	39,621	..	39,621	154	58	..	..	150	..	4
Cheverton, Bedford, ...	43,854	..	43,854	164	100	..	..	75	2	15
Cambria No. 1, Bedford, ...	24,863	..	23,936	107	111	..	..	..	..	19
Dural shaft, Bedford, ...	146,160	..	143,000	255	226	4	5	800	..	..
Delaney, Cambria, ...	8,737	..	8,737	168	16	..	..	70	..	97
Dougherty, Blair, ...	4,000	..	4,000	250	11	1	..	35	..	..
Eagle, Cambria, ...	6,000	..	6,000	200	15	..	..	15	..	1
Eldorado, Cambria, ...	38,367	..	37,167	215	132	1	..	135	1	4
East End, Blair, ...	118,389	..	118,389	206	32	..	..	336	..	5
Fisher, Huntingdon, ...	12,418	..	12,418	218	218	..	..	..	..	14
Forest Nos. 1 and 2, Clearfield, ...	62,149	28,153	17,522	225	150	..	..	375	5	9
Glen White, Blair, ...	39,817	..	39,817	278	51	..	..	..	..	4
Great Bend, Cambria, ...	169,578	..	169,053	171	363	1	2	675	..	22
Glenwood Nos. 1, 2 and 3, Indiana, ...	126,165	..	121,922	225	228	..	..	1,775	3	15
Gazam Nos. 1, 2 and 3, Clearfield, ...	141,771	80,817	37,130	206	217	3	5	1,408	..	17
Grass Flat, Clearfield, ...	9,218	..	9,218	178	36	..	..	..	1	1
Harvey slope, Bedford, ...	..	..	..	..	..	..	..	..	..	..
Horse Shoe Nos. 1 and 2, Blair, ...	..	..	..	..	..	..	..	..	..	..
Holts, Centre, ...	17,492	..	17,492	208	79	..	..	250	..	5

Hickes, Huntington.	5,830	103	35	12	2	2
Huntingdon, Huntington.	12,100	72	40	52	4	4
Ivona Nos. 1 and 2, Clearfield.	12,378	140	36	75	16	80
Kearney, Bedford.	17,361	240	139	180	3	3
Knorr Run, Clearfield.	48,000	170	136	167	4	4
Knorr Run, Clearfield.	29,697	167	69	167	4	4
Kerstone, Clearfield.	22,231	291	30	291	2	2
Kellys, Centre.	34,740	158	51	611	10	50
Kyler, Clearfield.	4,560	158	51	611	10	50
Lucas Hill, Centre.	4,006	46	31	100	3	100
Lueder slope, Clearfield.	32,620	130	180	500	8	100
Lemon, Blair.	32,065	240	45	120	4	50
Max Frick, Cambria.	33,073	238	70	120	1	50
Mountaindale, Cambria.	60,332	168	104	168	5	5
Moravian, Clearfield.	56,668	298	68	168	11	100
Mt. Equity, Bedford.	32,300	120	140	150	14	100
National, Clearfield.	9,000	150	18	100	2	100
Oakland, Clearfield.	47,973	112	88	242	8	8
Ocean Nos. 1 and 2, Huntington.	47,962	130	110	325	10	10
O Shanter Nos. 1 and 2, Clearfield.	15,621	117	53	134	4	4
P Shanter Plane, Clearfield.	76,000	200	99	430	9	9
Penn, Indiana.	53,482	167	90	30	5	2
Perks, Clearfield.	12,776	230	7	30	2	2
Porter shaft, Blair.	13,271	233	7	10	14	14
Robertsdale, Huntington.	14,700	233	7	10	31	132
Sonerville Nos. 1, 2 and 3, Clearfield.	117,539	152	243	1,961	11	1
Snow Shoe Nos. 1, 2 and 3, Centre.	141,408	157	249	1,100	27	200
Tipton, Blair.	15,000	100	53	150	6	6
Urey Nos. 1, 2 and 3, Indiana.	46,232	106	90	300	7	7
Woodvale shaft, Huntington.*	44,228	170	133	539	11	11
New Hampshire, Bedford.	7,000	120	133	539	2	2
Fairplay, Bedford.	8,400	66	133	539	2	2
Total.	2,773,116	224,181	5,697	17,043	49	438
		2,452,484	4	25	5	942

*The shipments from Woodvale shaft are included with Robertsdale shipments.

TABLE NO. 3—Showing the number of each class of employes at each colliery in the Tenth Bituminous Mine District during the year 1893.

Names of Collieries—Location in County.	Number of Persons Employed Inside.						Number of Persons Employed Outside.								
	Inside foreman or mine boss.	Miners.	Miners' laborers.	All company men.	Drivers and run-ners.	Door boys and helpers.	Total Inside.	Outside foreman.	Blacksmiths and carpenters.	Engineers and fire-men.	Slate pickers.	All company men.	Superintendents, bookkeepers and clerks.	Total outside.	Grand total inside and outside.
Blands, Cambria.	1	9	..	..	..	..	12	..	..	..	..	1	..	1	13
Bennington slope, Blair.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bloomington Nos. 1, 2 and 3, Clearfield.	3	437	..	3	30	3	466	..	3	..	..	20	..	26	492
Bloomington 2, Bedford.	1	86	..	1	36	2	126	..	1	1	..	4	1	1	143
Bonded, Huntingdon.	1	32	..	1	..	..	36	..	..	..	..	..	..	1	40
Caro, Centre.	1	33	..	1	2	..	37	..	..	..	..	1	..	3	40
Cambria 1, 2 and 3, Bedford.	1	135	..	2	10	2	150	1	1	2	1	2	2	10	175
Crescent, Bedford.	1	151	..	2	9	2	165	..	1	1	..	3	..	5	180
Chevington, Bedford.	1	49	..	1	3	1	55	..	1	..	..	3	..	5	58
Cumberland, Bedford.	1	86	..	2	3	1	95	1	..	1	..	3	..	6	100
Cunard, Bedford.	1	93	..	1	8	2	105	..	..	..	..	4	..	1	111
Duval shaft, Bedford.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Delaney, Blair.	1	200	..	..	7	..	208	2	..	1	..	13	2	18	226
Dougherty, Blair.	1	14	..	15	..	..	15	..	..	..	..	1	..	1	16
Eagles, Cambria.	1	8	..	..	1	..	9	..	..	..	..	2	..	2	11
Eldorado, Cambria.	1	13	..	15	..	..	15	..	..	..	..	1	..	1	15
East End, Blair.	1	119	..	1	4	..	125	..	1	1	..	5	..	7	132
Fisher, Huntingdon.	1	24	..	1	2	..	28	..	..	..	..	3	..	4	32
Forest Nos. 1 and 2, Clearfield.	1	196	..	2	8	2	209	..	2	2	2	34	1	9	218
Glen White, Blair.	1	98	..	2	7	2	110	1	1	2	..	6	..	10	150
Great Bend, Cambria.	1	38	..	32	2	1	72	..	..	..	..	1	..	51	91
Glenwood Nos. 1, 2 and 3, Indiana.	2	326	..	2	20	2	352	..	1	1	..	16	1	11	363
Guzzon Nos. 1, 2 and 3, Clearfield.	2	182	..	2	16	2	204	..	3	2	1	3	3	24	228
Grassy Flat, Clearfield.	1	180	..	2	9	..	193	1	3	..	..	9	2	18	211
Harvey slope, Bedford.	1	119	..	1	2	..	123	..	..	1	..	2	..	3	125
Harrowshoe, Blair.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Holts Centre.	1	69	..	2	1	..	76	..	..	..	..	2	..	3	79
Hokes, Huntingdon.	1	29	..	1	2	..	33	1	..	..	..	1	..	3	35
Huntingdon, Huntingdon.	1	53	..	1	3	..	58	..	1	..	..	2	..	3	40
Irvona Nos. 1 and 2, Clearfield.	1	23	..	1	3	..	26	..	1	..	..	8	..	10	36
Kecks, Clearfield.	1	22	..	..	2	..	26	..	..	..	..	3	..	3	29
Kearney, Bedford.	1	86	..	2	5	2	96	1	2	1	..	34	..	40	136
Knox Run, Clearfield.	1	58	..	1	3	1	64	..	1	..	..	4	..	6	69
Keystone, Clearfield.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kellys, Centre.	1	17	..	..	1	..	19	..	..	..	..	1	..	1	20

Kyle, Clearfield.	1	41	1	1	2	45	1	4	1	6	51
Lucas Hill, Centre.	1	25	2	2	2	28	2	3	3	31	3
Lueder slope, Clearfield.	1	149	1	2	6	160	1	16	20	180	180
Lemon, Blair.	1	36	1	1	6	41	1	2	4	45	45
Max Frick, Cambria.	1	36	1	1	3	65	1	2	1	5	70
Mountaindale, Clearfield.	1	60	1	1	3	97	1	6	7	104	104
Moravian, Clearfield.	1	90	1	1	6	1	1	7	1	8	68
Mt. Equity, Bedford.	1	1	1	1	4	2	1	50	2	40	140
National, Clearfield.	1	95	1	1	3	100	1	34	2	40	140
Oakland, Clearfield.	1	14	1	1	1	16	1	18	2	18	18
Ocean Nos. 1 and 2, Huntingdon.	1	76	1	1	5	88	1	3	5	88	88
O'Shanter Nos. 1 and 2, Clearfield.	1	93	1	1	1	100	1	8	1	10	110
O Shanter Plane, Clearfield.	1	40	1	1	2	45	1	6	1	8	89
O Shanter Hill.	1	84	1	1	2	91	1	7	8	99	99
Pleasant Hill.	2	184	2	10	2	200	2	52	2	60	260
Snow Shoe, Nos. 1, 2 and 3, Centre.	2	1	2	1	1	30	1	3	3	33	33
Spiton, Blair.	1	4	1	1	1	36	1	2	1	4	4
St. Fred's, Indiana.	1	81	1	3	1	106	1	2	1	13	123
Wetmore shaft, Huntingdon.	1	96	1	2	11	100	1	1	1	16	16
New Hampshire, Bedford.	1	13	1	2	2	15	1	1	1	1	1
Fairplay, Bedford.	1	6	1	1	1	6	1	1	1	1	1
Total.	59	4,720	62	280	42	5,163	8	391	44	534	5,637

TABLE NO. 4.—*List of fatal accidents which occurred in and about the mines of the Tenth Bituminous Mine District for the year ending December 31, 1893.*

Date of accident.	Name of Person.	Occupation.	Age.	Widow.	Number of orphans.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Mar. 9,	B. F. Edwards, . . .	Miner, ...	69	M.	..	Woodvale shaft, ...	Huntingdon, ...	Killed by a descending cage while walking across bottom of shaft. Instead of going around by the manway.
April 18,	B. J. Williams, . . .	do.	27	M.	..	Glenwood No. 3.	Indiana, ...	Killed by fall of coal while undermining the center stump of coal which had been left for support.
Oct. 13,	Andrew W. Larson, .	do.	26	M.	1	Bloomington No. 4, . .	Clearfield, ...	Killed by a fall of coal which dropped from a slip while he was undermining.
Dec. 5,	Andrew Stavoskey, .	do.	35	M.	..	East End, ...	Blair, ...	Killed by a fall of rock in heading while taking down loose rock.

TABLE No. 5.—List of non-fatal accidents which occurred in and about the mines of the Tenth Bituminous Mine District for the year ending December 31st, 1893.

Date of accident	Name of Person.	Occupation.	Age.	Married or single.	No. of children.	Name of Colliery.	Location—County.	Nature and Cause of Accident.
Jan. 18,	John Baltzell,	Miner,	30	M.	..	Browns No. 2,	Bedford,	Leg broken by a fall of coal.
25,	Harry Gray,	Shifter,	..	..	..	Delaney,	Cambria,	Thighs and shin—slit between the cars.
30,	Henry Records,	Miner,	50	M.	..	Forest,	Clearfield,	Slipped—knee caused by a fall of coal.
Feb. 2,	Harvey Wise,	do.	27	S.	..	Pleasant Hill,	..	Injured on the head by a fall of coal.
8,	W. Wilson,	do.	..	..	..	Cambria No. 3,	Bedford,	Injured about the head by a fall of slate.
17,	Charles Chamberlin,	do.	20	S.	..	Browns No. 2,	..	Arm broken: caught between the car and the roof.
18,	Dave Eichenlaub,	Trip runner,	..	..	..	Delaney,	Cambria,	Hurt by being thrown from the trip of cars.
20,	Alfonse Labbo,	Miner,	14	..	..	Robertsdale,	Huntingdon,	Injured on the head by a fall of rock.
Mar. 10,	George Sabbo,	..	..	..	..	Snow Shoe,	Centre,	Thumb broken by a fall of coal.
14,	C. W. Winkfield,	Driver,	25	S.	..	Browns No. 2,	Bedford,	Leg broken by a runaway car on a grade.
27,	Albert Peterson,	Miner,	21	S.	..	Perkes,	Clearfield,	Leg broken by a fall of coal.
31,	R. C. Fisher,	do.	34	M.	..	Harvey Slope,	Bedford,	Leg broken by a fall of rock from side of heading.
Apr. 17	James Falconer,	do.	..	..	..	Grass Flat,	Clearfield,	Back injured by a fall of coal.
19,	E. D. Miner,	do.	..	..	..	Delaney,	Cambria,	Back injured by a fall of coal.
May 25,	Alfonse Weyman,	do.	34	M.	..	Robertsdale,	Huntingdon,	Cut about the eyes and face by a premature explosion of powder while tamping a shot.
July 27,	James Stackhouse,	do.	36	..	..	Kyer,	Clearfield,	Leg broken by being caught between the mine cars.
Aug. 3,	James Corvie,	do.	55	M.	..	Bloomington,	..	Hurt by a fall of coal.
3,	M. Wolf,	do.	..	..	..	Delaney,	Cambria,	Hurt by a fall of coal.
15,	Al. McKittey, Jr.,	Driver,	..	..	..	Brown,	Clearfield,	Hurt by a fall of rock.
Sept. 23,	A. Anderson,	Miner,	..	..	..	Bloomington,	do.	Hand injured by a fall of coal.
Nov. 2,	John Larson,	do.	..	..	..	Grass Flat,	..	Collar bone broken by a fall of coal.
30,	Lan Engstrom,	do.	..	..	..	..	..	Collar bone broken by a fall of bone coal.
Dec. 2,	Richard Bourke,	do.	..	..	..	Robertsdale,	Huntingdon,	Injured by a fall of coal.
2,	John Antionda,	do.	..	..	..	Delaney,	Cambria,	Injured by a fall of coal.
5,	E. Yungmark,	do.	..	..	..	Bloomington,	..	Leg broken by a fall of slate.
10,	John Bocke,	do.	..	..	..	Robertsdale,	Huntingdon,	Injured by a fall of coal.
14,	Joseph Raboskey,	..	..	..	..	Snow Shoe,	Centre,	Finger hurt by a fall of coal.
19,	John Grant,	Driver,	..	..	..	Bloomington,	Clearfield,	Finger smashed while coupling mine cars.
22,	Frank Giernoz,	Miner,	..	..	..	Robertsdale,	Huntingdon,	Collar bone broken by a fall of coal.
27,	David Stephens,	Driver,	..	..	..	do.	..	Collar bone and three ribs broken by falling down the shafts in the shaft.
29,	Gus Campbell,	Miner,	..	..	..	Dougherty,	Blair,	Collar bone broken by a fall of coal.



INDEX.

	Page.
MINING STATISTICS, ...	i
Aggregate production of anthracite coal, ...	ii
Average annual production per man, ...	iii
Aggregate production of bituminous coal, ...	iii
Average annual production per man, ...	iii
Summary of fatal accidents, ...	iii
Percentage of fatal and non-fatal accidents for the number employed, ...	iii
Percentage of accidents for five years, ...	iv
Production of coal and coke by districts for five years, ...	v
Number of employes by districts for five years, ...	vi
Accidents, fatal and non-fatal, by districts for five years, ...	vi
Production of anthracite coal and number of employes by counties for five years, ...	vii
Production of bituminous coal and coke and number of employes by counties for five years, ...	viii-ix
Days in operation of anthracite collieries for seven years, ...	x-xix
Days in operation of bituminous collieries for seven years, ...	xx-xli
FIRST ANTHRACITE DISTRICT, ...	5
Quantity of coal produced, ...	5
Number of accidents, ...	5
Quantity of coal produced per life lost, ...	5,27
Remarks on the condition of the mines, ...	5
General remarks on accidents, their causes and how to prevent them, ..	6
Nationality of persons killed or injured, ...	6
Negligence of miners, ...	7
Causes of accidents described, ...	7-10
Suggestions for their prevention, ...	10
Description of accidents, ...	11-12
Accidents by cars, ...	19-21
By explosions of gas, ...	21
By shot through pillar, ...	21
Breaker accidents, ...	22-23
Construction of the law relating to the health and safety of anthracite coal miners, ...	23-25
Names of persons recommended to receive mine-foremen's certificates, ..	25
Names of persons recommended to receive assistant mine-foremen's certificates, ...	25
Total quantity of coal produced during 1893 by companies, ...	26

First Anthracite District—Continued.

	Page.
Number of employes and average number of tons of coal produced per employe by each company, ...	26
Number of fatal accidents and quantity of coal produced per life lost, ...	27
Number of fatal and non-fatal accidents and quantity of coal produced per accident, ...	27
Classification of accidents, ...	28
Nationality of persons killed or fatally injured, ...	28
Occupation of persons killed or injured, ...	28,29
Improvements in collieries, ...	29-31
Location of collieries, ...	32
Tonnage of collieries, days in operation, number of persons killed, injured, etc., ...	33-35
Number of each class of employes in each colliery, ...	36-37
List of fatal accidents, ...	38-39
List of non-fatal accidents, ...	40-42
Quantity of air circulation, ...	43-44
Report on steam boilers, ...	45-47
Number and horse power of engines and number of steam boilers, ...	48-49
 SECOND ANTHRACITE DISTRICT, ...	 51
Synopsis of reports for 1893, ...	51
Classification and percentage of fatal accidents, ...	52
Nationality and percentage of persons killed, ...	52
Persons recommended to hold positions as foremen and assistants, ...	52
Description and plan of West Ridge Coal Company, ...	53-54
Names and location of collieries, names of operators and superintendents, ...	55-58
Number of tons of coal mined, days worked, persons employed and injured, etc., ...	59-63
List of fatal accidents, ...	64,65
List of non-fatal accidents, ...	66-73
Number of each class of employes, ...	74-75
 THIRD ANTHRACITE DISTRICT, ...	 77
Total production of coal, ...	77
Number of fatal accidents, ...	77
Coal mined by companies, ...	77-78
Number of fatal accidents and tons of coal produced per life lost, ...	78
Number of non-fatal accidents, ...	79
Number of fatal and non-fatal accidents, and number of tons of coal produced for each person killed or injured, ...	79-80
Classification of fatal and non-fatal accidents, ...	80
Occupation of persons killed or injured, ...	80
Condition of mines, ...	81
Description of accidents, ...	81-84
Record of colliery improvements, ...	84-87
Names and location of collieries, names of operators and superintendents, ...	88-89
Number of tons of coal mined, days worked, persons employed and injured, etc., ...	90-92
Number of each class of employes, ...	93-95
List of fatal accidents, ...	96-98
List of non-fatal accidents, ...	99-104

	Page.
FOURTH ANTHRACITE DISTRICT, ...	105
Tons of coal mined by companies, ...	105
Number of fatal accidents and number of tons of coal mined per life lost, ...	106
Number of non-fatal accidents and number of tons of coal mined per person injured, ...	106-107
Classification of fatal and non-fatal accidents, ...	107
Condition of mines, ...	107-109
Record of improvements, ...	109-112
Pumping by electricity, ...	112
Annual examinations for certificates of qualification as foremen, ...	113
Accidents, description of, ...	113-118
Names and location of collieries, names of operators and superintendents, ...	119-120
Number of tons of coal mined, days worked, persons employed and injured, etc., ...	121-123
Number of each class of employes, ...	124-126
List of fatal accidents, ...	127-131
Recapitulation of fatal accidents, ...	132
List of non-fatal accidents, ...	133-143
FIFTH ANTHRACITE DISTRICT, ...	145
Production of coal, ...	145
Number of lives lost, ...	145
Tonnage of all coal, ...	146
Number of fatalities and tons of coal mined per life lost, ...	146
Number of non-fatal accidents and tons of coal produced per person injured, ...	147
Number of fatal and non-fatal accidents, and tons of coal produced per person killed or injured, ...	147-148
Classification of fatal and non-fatal accidents, ...	148
Nationality of persons injured, ...	148
Comparative statement of the number of tons of coal produced per fatality, etc., for ten years, ...	149
Comparison, showing the number of different causes of fatal accidents for ten years, ...	149
Examinations of applicants for positions as mine foremen and assistants, ...	154
Colliery improvements, ...	150-153
Remarks in regard to fatalities, ...	155-158
General description of the remodeling of Cross Creek Coal Company's breaker, ...	158-160
Description of a furnace with automatic stoker, etc., for burning small coal, ...	160-173
Names and location of collieries, names of operators and superintendents, ...	174-175
Number of tons of coal mined, days worked, persons employed and injured, etc., ...	176-179
Number of each class of employes, ...	180-183
List of fatal accidents, ...	184-188
Recapitulation of fatal accidents, ...	189
List of non-fatal accidents, ...	190-195

	Page.
SIXTH ANTHRACITE DISTRICT, ...	197
Examination of applicants for mine foremen's certificates, ...	197
Causes of fatal accidents, ...	198,199
Condition of collieries, ...	199,200
Comparative statement of fatal casualties, ...	201
Number of fatal accidents; quantity of coal produced for each life lost, ...	201
Comparative statement of non-fatal casualties for 1892 and 1893, ...	202
Quantity of coal produced and shipped during 1892 and 1893, ...	202
Comparative statement of number of persons employed, lives lost, etc., during 1892 and 1893, ...	202
Death rate per thousand as a basis of comparison between different companies and individual operators, ...	203
Comparative statement of fatal and non-fatal accidents and their causes for five years, ...	203,204
Number of persons employed inside and outside of mines, ...	205
Average number of days worked by different collieries, ...	205
Nationalities of persons killed and injured, ...	206
Location of collieries, names of operators and superintendents, ...	207
Total number of tons of coal mined in each colliery, number of days worked, number of employes and other persons killed and in- jured, ...	208,209
Number of each class of employes at each colliery, ...	210,211
List of fatal accidents, ...	212-215
List of non-fatal accidents, ...	216-220
SEVENTH ANTHRACITE DISTRICT, ...	221
Quantity of coal produced, ...	221
Number of accidents, fatal and non-fatal, ...	221
Condition of collieries, ...	221
Examination of applicants for mine foremen's certificates, ...	222
Principal improvements, ...	222
Neilson disaster, ...	223
Fire at Pennsylvania colliery, ...	224
Destruction of Mid Valley breaker, ...	225
Details of fatal accidents, ...	225-228
Comparative statement of fatal casualties for three years, ...	228
Number of tons of coal mined by each company, fatal casualties, and number of tons mined for each fatality, ...	228
Comparison of non-fatal accidents, 1891-1893, ...	229
Comparison of quantity of coal shipped and of total production, 1891- 1893, ...	229
General comparison of number of persons employed, number of tons of coal mined per life lost or injury inflicted, and of number of tons mined per employe, 1891-1893, ...	229
Number of persons employed by each company and number of deaths, ...	230
Location of collieries, names of operators and superintendents, ...	231
Total number of tons of coal mined in each colliery, number of days worked, number of employes and other persons killed and injured, ...	232,233
Number of each class of employes at each colliery, ...	234-235
List of fatal accidents, ...	236,237
List of non-fatal accidents, ...	238-241

	Page.
EIGHTH ANTHRACITE DISTRICT, ...	243
Quantity of coal produced, ...	243
Comparative statement of fatal accidents, 1892, 1893, ...	244
Number of fatal accidents; quantity of coal produced for each life lost, ...	244
Comparative statement of non-fatal accidents, 1892, 1893, ...	244
Quantity of coal shipped by rail and quantity sold at Mines, ...	245
Number of persons employed, quantity of coal mined per life lost, and ratio of lives lost and injuries inflicted to the quantity of coal pro- duced for each employe, 1892, 1893, ...	245
Summary of accidents, coal produced, etc., ...	245
Location of collieries, names of operators and superintendents, ...	246
Total number of tons of coal mined in each colliery, number of days worked, number of employes and other persons killed and in- jured, ...	247,248
Number of each class of employes at each colliery, ...	249,250
List of fatal accidents, ...	251
List of non-fatal accidents, ...	252,253
FIRST BITUMINOUS DISTRICT, ...	257
Number of fatal accidents, ...	257
Production of coal,.....	257
General summary of coal produced, persons employed, accidents, etc.,..	258
Causes of accidents, ...	259
Descriptions of mines, ...	259-273
Descriptions of fatal accidents, ...	273-277
Location of collieries, names of operators and superintendents, ...	278,279
Total number of tons of coal mined in each colliery, number of days worked, number of employes and other persons killed and in- jured, ...	280,281
Number of each class of employes at each colliery, ...	282,283
List of fatal accidents, ...	284
List of non-fatal accidents, ...	285,286
SECOND BITUMINOUS DISTRICT, ...	287
Number of mines, ...	287
Improvements in mines, ...	287
Summary of accidents and their causes, ...	287-289
Summary of mines operated, persons employed, etc., ...	289,290
Increase in production, ...	290
Circular issued by mine Inspector relative to enforcement of the mining law of 1893, ...	291,293
Description of mines and mining, ...	293-301
Location of collieries, names of operators and superintendents, ...	303,304
Total number of tons of coal mined in each colliery, number of days worked, number of employes, persons killed and injured, ...	305-307
Number of each class of employes at each colliery, ...	308,309
List of fatal accidents, ...	310,311
List of non-fatal accidents, ...	312,313
THIRD BITUMINOUS DISTRICT, ...	314
Causes of accidents, 1893, ...	315
Summary of statistics, ...	315
Improvements to collieries during year, ...	317

Third Bituminous District—Continued.

	Page.
Description of mines, ...	318-325
Men granted mine foremen's certificates, ...	326
Location of collieries, names of operators and superintendents, ...	327-328
Total number of tons of coal mined in each colliery, number of days worked, number of employees and number of persons killed and injured, ...	329,331
Number of each class of employees at each colliery, ...	332-333
List of fatal accidents, ...	334,335
List of non-fatal accidents, ...	336
 FOURTH BITUMINOUS DISTRICT, ...	 337
Synopsis of report, ...	338
Fatal and non-fatal accidents and their causes, ...	338
Number of mines in each county in district, number of employees and number tons of coal mined, ...	339
Description of mines, ...	339-345
Location of collieries, names of operators and superintendents, ...	346
Total number tons of coal mined in each colliery, number of days worked, number of employees, number of persons killed and injured, ...	347,348
Number of each class of employees at each colliery, ...	349-350
List of fatal accidents, ...	351
List of non-fatal accidents, ...	352
 FIFTH BITUMINOUS DISTRICT, ...	 353
Summary of statistics showing comparison between 1892 and 1893,....	353
Number and causes of accidents, 1892-1893, ...	354
Description of mines, ...	355-371
Description of the Stanley Header mining machine, ...	371-374
Description of mines, continued, ...	374-375
Location of collieries, names of operators and superintendents, ...	376-377
Total number of tons of coal mined in each colliery, number of days worked, number of employees, persons killed and injured, ...	378-379
Number of each class of employees at each colliery, ...	380-381
List of fatal accidents, ...	382
List of non-fatal accidents, ...	383-384
 SIXTH BITUMINOUS DISTRICT, ...	 385
Causes of fatal and non-fatal accidents, ...	385
Mining statistics for 1893, ...	386
Remarks on causes of accidents, ...	386-387
General conditions of mines, ...	387-397
Location of collieries, names of operators and superintendents, ...	398-399
Total number of tons of coal mined in each colliery, number of days worked, number of employees; persons killed and injured,.....	400-401
Number of each class of employees at each colliery, ...	402-403
List of fatal accidents, ...	404
List of non-fatal accidents, ...	405
 SEVENTH BITUMINOUS DISTRICT, ...	 407
Table of statistics, ...	409
Causes of accidents, ...	409

Seventh Bituminous District—Continued.

	Page:
Description of collieries, ...	410-422
Description of fatal accidents for 1893, ...	422-429
Location of collieries, names of operators and superintendents, ...	430-431
Total number of tons of coal mined in each colliery, number of days worked, number of employes, persons killed and injured, ...	432-433
Number of each class of employes at each colliery, ...	434-435
List of fatal accidents, ...	436
List of non-fatal accidents, ...	437-438
 EIGHTH BITUMINOUS DISTRICT, ...	 439
Table of statistics, ...	440
Causes of accidents, ...	440
Nationalities of those killed and injured, ...	441
Circular letter to mine foremen, ...	441
Nationality of employes in district, ...	441
Table showing whether accidents could have been prevented by care- fulness, ...	442
Result of a coroner's inquest, ...	443
Description of a mine fire and the means taken to extinguish it, ...	444-448
Average earnings of employes, ...	448-449
Description of a coal cutting machine, ...	450
Description of Miners' Hospital, ...	450
Number of patients during the year, ...	450-451
Description of injuries, ...	451
Description and condition of mines, ...	451-464
Location of collieries, names of operators and superintendents, ...	465-466
Total number of tons of coal mined in each colliery, number of days worked, number of employes; persons killed and injured, ...	467-469
Number of each class of employes at each colliery, ...	470-472
List of fatal accidents, ...	473-474
List of non-fatal accidents, ...	475-476
 NINTH BITUMINOUS DISTRICT, ...	 477
Table of accidents fatal and non-fatal, ...	478
Table of statistics, ...	479
Description of mines, ...	479-488
Description of a fire in "Rainbow" mine, ...	488-490
Description of a fire in "Banning" mine, ...	490
Description of a fire in "Port Royal" mine, ...	490-493
Description of fatal accidents, ...	493-495
Description of State Hospital, Connellsville, ...	495
Number and occupation of patients treated, ...	496
Location of collieries, names of operators and superintendents, ...	497-498
Total number of tons of coal mined and tons of coke produced in each colliery, number of days worked, number of employes; persons killed and injured, ...	499-501
Number of each class of employes at each colliery, ...	502-503
List of fatal accidents, ...	504-505
List of non-fatal accidents, ...	506-507

	Page.
TENTH BITUMINOUS DISTRICT, ...	509
Causes of accidents in 1893, ...	509
Table of statistics, ...	510
Description of mines, ...	510-515
Location of collieries, names of operators and superintendents, ...	516-517
Total number of tons of coal mined in each colliery, number of days worked, number of employes; persons killed and injured, ...	518-519
Number of each class of employes at each colliery, ...	520-521
List of fatal accidents, ...	522
List of non-fatal accidents, ...	523

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